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Hydrophobia.

Some seeds have been received at the Patent Office from New Orleans, for distribution, which are used in St. Bernard's Parish, Louisiana, for the cure of hydrophobia. The plant originally came from Mexico, and the seeds alone are employed for effecting a cure of this peculiar disease. The way to use it is, to steep the seeds in wine for about 24 hours—three seeds is a full dose—and three doses are given to a patient every day, for nine days.

The discovery of a perfect antidote for hydrophobia would really be one of the most important ever made in medicine, for although many substances have, from time to time, been brought forward as curatives, still no one has really proved so. The case of a patient who died in the New York Hospital on the 15th of last month, proves that this disease is not altogether well named. The physician found, that the most distressing part of the malady is the *difficulty and pain in swallowing*, arising from sharp spasmodic action of the muscles concerned in this function, extending sometimes even to those of the neck and chest, and producing a feeling of alarming constriction of the organs of respiration, causing almost complete, though temporory suffocation, and thus aggravating if not actually exciting the convulsions, with the more or less violent contortions and discoloration of the countenance, protrusion of the eyeballs, and other active and painful symptoms. But he experienced no dread of the sound of water, and even took some in his mouth, but found great pain in an endeavor to swallow it. He was carefully treated, with cool cloths applied to his head, mustard poultices to his feet, and the administration of anodyne and nourishing enemata, but he died in twenty hours after he was admitted.

The peculiarity of the hydrophobia poison is, that it may slumber in the system for some time, and then begin to exert its terrible power in some unexpected moment.—This patient was bitten five weeks before he was taken to the hospital, and the wound was perfectly healed, but, although the poison slumbered so long in his system, it at last did its fearful work.

Tobacco.

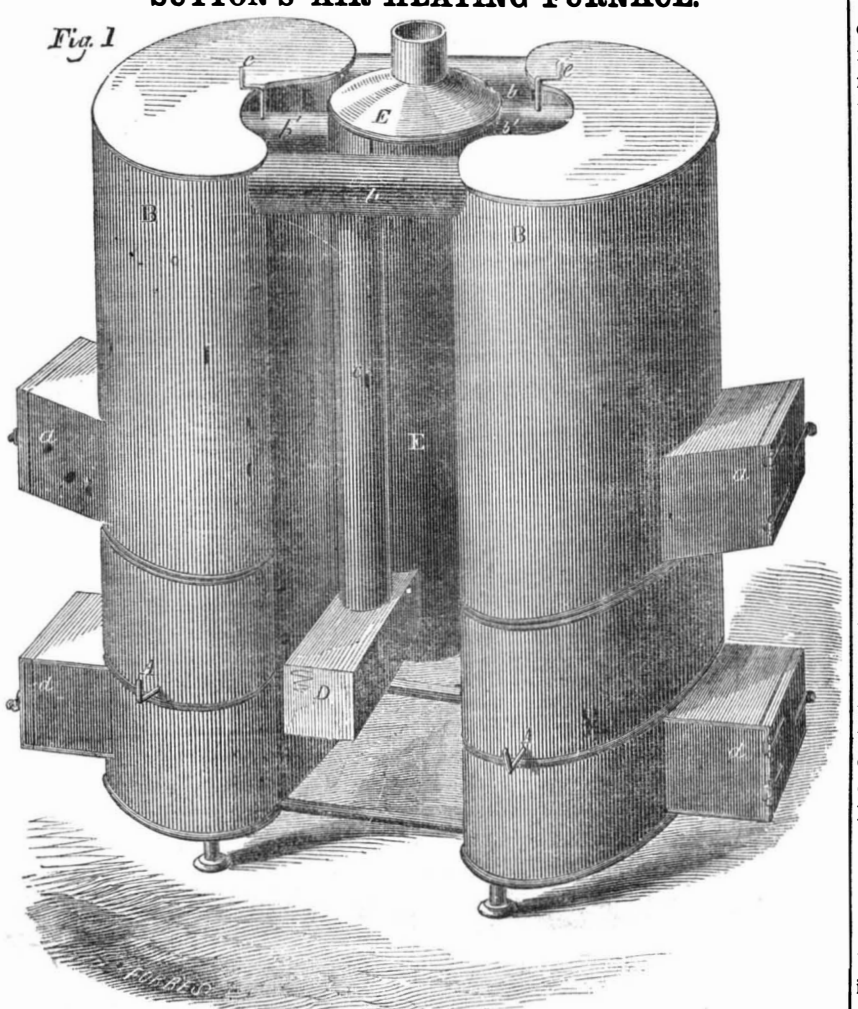
In the United States, physicians have estimated that 20,000 persons die every year from the use of tobacco. In Germany, the physicians have calculated that, of all the deaths which occur between the ages of 18 and 35, one half originate in the waste of constitution by smoking! They say that the article exhausts and deranges the nervous powers and produces a long train of nervous diseases, to which the stomach is liable, and especially those forms that go under the name of dyspepsia. It also exerts a disastrous influence upon the mind.—[United States Gazette.

[Can the above be substantiated by positive testimony?

Nearly six million bushels of salt were made at the Salt Works of Onondaga Co., N. Y., last year.

SUTTON'S AIR HEATING FURNACE.

Fig. 1



The accompanying engraving represents a hot air furnace, for which a patent was granted on the 11th of last March, to James. H. Sutton.

Fig. 1 is a perspective view, and fig. 2 is a horizontal section taken above the grates. This air heating furnace has two distinct fire chambers, B B, combined with a hot air chamber and a central smoke pipe. Similar letters indicate like parts.

B B are the cases of two fire chambers or boxes, and A A are their grates, which are hung on central pivots, and swing in the usual way. *a a* are the doors for feeding in the fuel to the fires, and *d d* are the doors of the ash pit. The smoke and hot gases can pass immediately into the central smoke pipe by the pipes, *b' b'*, which have dampers, *e e*; but the heat from the fires is directed through the side pipes, *b b*, down the pipes, *c*, (one on each side,) into the air box, D, and then enters at the foot of cylinder, E, into the central smoke pipe, then passes up into the chimney. The cylinder, E, is a case, with the smoke pipe in the center; into this (the case) the air is conducted at the box, D, and is thus heated, and from thence conveyed away to any apartment by a tube or tubes.

This heater is a very simple one, and having two furnaces combined, one can be in

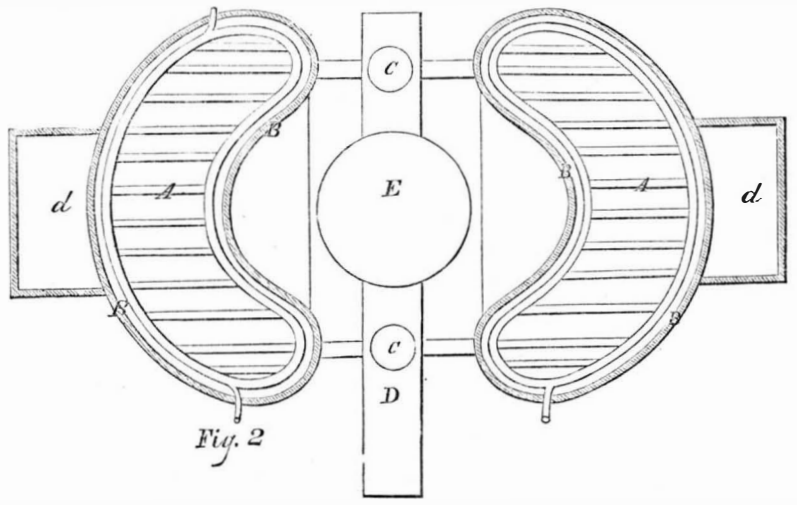


Fig. 2

full operation while the other is being cleaned out; or when the temperature of the weather is such that one fire will be sufficient for heating purposes, only one of the furnaces may be used. The heater itself possesses a great amount of heating surface, and is of a neat and compact form. The air heating chamber, according to the patent, may be placed around the furnace box, and connected in a continuous chamber with one surrounding the central smoke pipe, from which tubes may conduct the warm air to any distant part of the building in which the heater is placed.

This apparatus can also be used as a local heater, if desired, without conducting the hot air to distant rooms.

More information may be obtained by letter addressed to Sutton & Brown, Honesdale, Pa.

Smelling Salts.

It is singular that this substance, which is considered so delicate and refreshing a perfume, should be prepared by chemical art from matters of the most obnoxious character to the nasal organ; yet such is the fact. The proper and chemical term for smelling-salt is ammonia; it originally derived its name from the temple of Jupiter Ammon, at Ammonia, in Libya, a district of Egypt, in the neighborhood of which it was first manufactured. In Egypt the chief fuel is the dung of the camel; and as all animal substances yield a large portion of ammonia, there is much of it in this substance; hence the soot arising from its combustion is impregnated with ammonia, from which it is afterwards abstracted. In Europe, ammonia used to be made by distilling bones, horns. parings of hides, and other waste animal matter from the tanners' and slaughter-houses; but latterly a cheaper source has been discovered, namely, from the refuse of the manufacture of coal gas. It is found that all plants and coal (which is of vegetable origin) yield, by distillation, from one to three per cent. of ammonia. Many other substances come over with the ammonia in the distilling apparatus, which are horrible to smell, but which the chemist and perfumer rectify, so as at last to produce that exquisite perfume which is carried by the ladies, encased in crystal, gold, and silver.

SEPTIMUS PIESSE.

London.

The Course of Cities.

The Academy of Sciences in Paris have been investigating the causes which almost invariably make the west end of a city grow more, and become more fashionable than the east. "It arises from the atmospheric pressure," answers the Academy of Science. The wind which causes the greatest ascension of the barometric column is that of the east, and that which lowers it most is the west. When the latter blows, it has the convenience of carrying with it to the eastern parts of a town all the deleterious gases which it meets in its passage over the western parts, and the inhabitants of the eastern part of a town have to support not only their own smoke and miasma, but those of the western part of the town, brought to them by the west winds. When, on the contrary, the east wind blows, it purifies the air by causing to ascend the pernicious emanations which it cannot drive to the west. The deduction from this law is, that the western part of a city is the best place of residence for persons of delicate health, and that all establishments from which emanate pernicious vapors and gases should be placed to the east. There seems to be good philosophy in these conclusions.

[The above we have seen in quite a number of our cotemporaries, but we cannot acquiesce in the philosophy. The conclusions may be correct for Paris, and some other European cities, where westerly winds prevail, but not for other places. Cities on navigable rivers generally grow downwards when there is room for such growth, but New York, which has outstripped all the European cities in rapid growth, has not expanded westward, but to the north; and as Brooklyn may really be considered a part of it, its progress has been towards the east, not the west. Neither the east nor west winds cause the greatest ascension and depression of the barometric column in New York, but the south and the northwest winds. Our west winds, however, are pure and pleasant, while our east winds are damp and chilly; but these never have been consulted in relation to the growth of the city.

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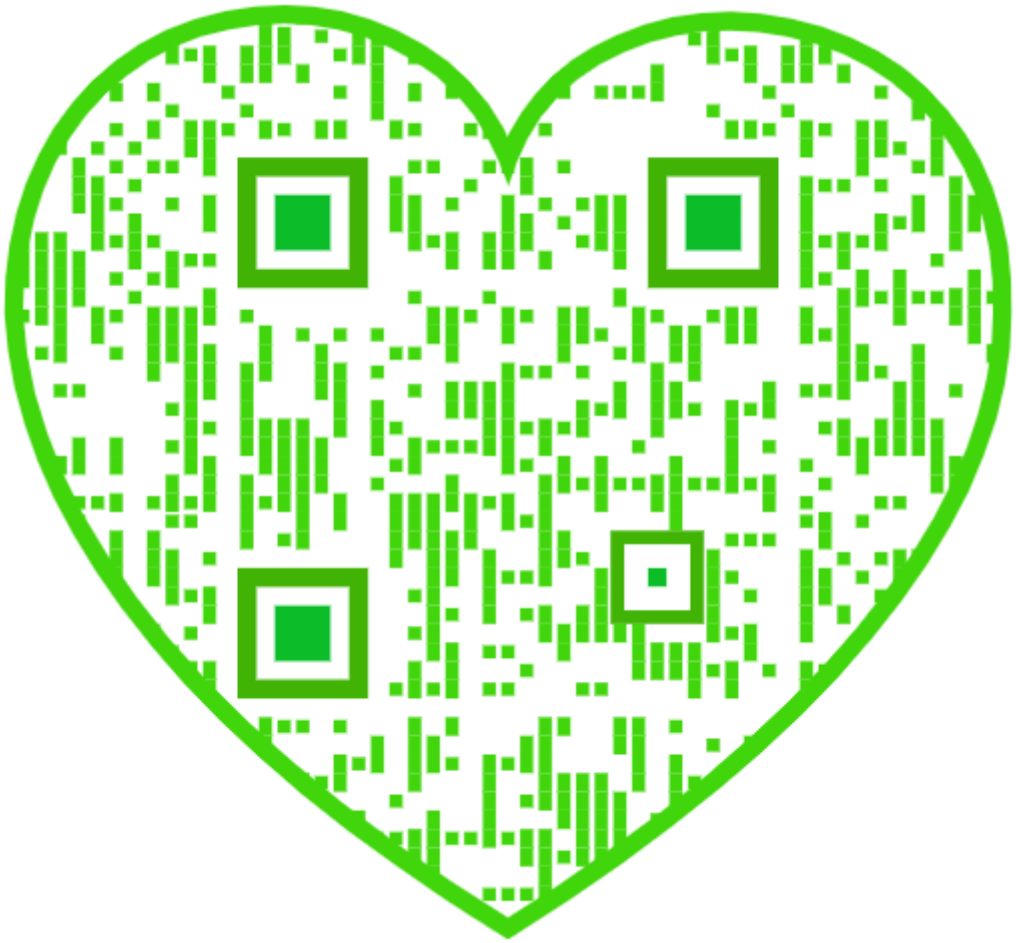

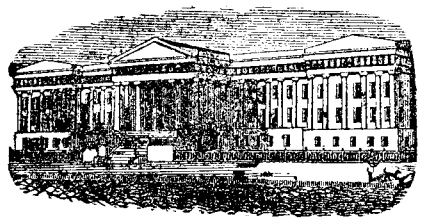

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office,

FOR THE WEEK ENDING MAY 24, 1855.

INVALID BEDSTEADS—Thos. Arnold, of Mobile, Ala.: I do not claim separately any of the described parts, irrespective of the general construction of the bedstead.

I claim forming the main frame or bottom, A, of the bedstead in three parts, a b c, the middle part being stationary, and the head part, a, rendered capable of being elevated, and the foot part depressed, in the manner and for the purpose set forth.

[The center part of the bottom being stationary, but the head and foot parts are hinged and moveable, the head part can be varied or inclined at any angle by a prop, and the foot part can be depressed. The invalid can be in a horizontal or inclined position, or he can be made to sit as in a chair. It is an exceedingly convenient bedstead for the purpose stated.]

SHUTTLE MOTION OF LOOMS—John Avery, of Lowell, Mass.: I claim in contradistinction from the operating of shuttles by a staff having a rectilinear motion however produced, the hanging of the staff upon a fixed pin or center, and so vibrating it in regard to the shuttle, as that the shuttle shall take its forward motion from the picker staff always with its heel on the rise, and its point dipped towards the shed, by means substantially such as described and for the purpose set forth.

CARTRIDGES—C. F. Brown, of Warren, R. J.: I claim, first, making the ends of the metal cartridge case of hemispherical or other convex form, substantially as and for the purpose set forth.

Second, providing a water chamber, s, in the rear end of the cartridge case to be filled with water previously to the insertion of the cartridge in the gun, substantially as and for the purpose set forth.

[The water chamber, s, is to serve for a packing at the breech, and to cool it when the powder is discharged.]

GAS REGULATORS—S. W. Brown, of Lowell, Mass.: I claim the tip valve, K, in combination with the movable top or float, F, of the regulator for operating the tip valve, by means of the projections, M M, or otherwise essentially in the manner and for the purposes set forth.

Second, I claim the use and application of oil and water, or other liquid on which oil will float, for the packing required in my gas regulators, essentially in the manner and for the purposes fully set forth.

INVALID BEDSTEAD—E. Daniels, of Union, N. Y.: I do not claim the flap F, neither do I claim, separately, a hinged or swinging body plane, for invalid bedsteads have been previously constructed, so that their bottoms may be inclined at different angles, in order to vary the position of the patient.

But I claim the combination of the body plane, B, thigh planes formed of the two parts, C C, D D, the parts, D D, being movable, and leg planes, E E, provided with adjustable bars, n, the movable parts, D, of the thigh planes and the bars, n, of the leg planes being operated by the racks and pinions, as shown and for the purpose as set forth.

[This bedstead is exceedingly applicable for hospitals, in the treatment of persons who have received fractures and wounds on their limbs. It can be operated by rack and pinion, so as to bring the wounded parts in proper position for operations, and also in setting dislocated bones.]

PAPER BAGS—E. W. Goodale, of Clinton, Mass.: I claim, first, giving the blades of the side shears, J J', J J', a curved angular or irregular form near the point, for the purpose of cutting out each by a single cut, the whole piece necessary to leave the lap on that side of the bag.

Second, hanging the movable blades, J J', of the side shears on shafts or pivots, j j', perpendicular to their faces, for the purpose of allowing them to cut slightly across the fixed blades by a slight lateral movement which they receive simultaneously with the movement usually given to shears, substantially as described.

Third, the intermittently rotating folder, arranged and operating substantially as described, to receive the bag pieces from the feed apron, L after the cutting and pasting operations, and to support or partly support them until the creasers come into their operative positions, and afterwards to fold them over the creasers.

Fourth, the combination of the side lappers, N N, and the laterally moving folding stands, d d, operating in conjunction with the creasers, substantially as and for the purposes set forth.

Fifth, the toothed roller, T, hung in a frame, T', from the axle of one of the pressing and delivery rollers, and operating substantially as described, to commence the removal of the bags from the creasers.

Sixth, the general arrangement and combination of the several working parts of the machine, substantially as described.

[The paper is cut from a roll, folded, pasted, and formed into a bag at one continuous operation in this machine. The shears are peculiarly arranged to cut the pieces of paper for bags, which are received on an endless apron, and carried forward and pasted by two rollers. Close to this apron is placed an intermittent rotary folding plate on which each pasted piece is deposited, and afterwards, by rotating creasing and lapping devices, the bag is folded, after which operations they are delivered and pressed. The machine makes paper bags of a superior quality.]

HUB AND AXLE FASTENING—John Henderson, of Horsehead's, N. Y.: I claim the peculiar form of the frustum box fastening, operating in the manner and for the purpose described.

VAPOR ENGINES—W. W. Hubbell & David Matthew, of Philadelphia, Pa.: We claim the combination of the distributing perforated pipe or plate, the safety feed pump governed by the pressure, and the condenser or its equivalent, to produce an uniform supply, evaporation, and condensation or return of the fluid, substantially as described.

PROCESSES FOR TREATING AURIFEROUS AND ARGENTIFEROUS SULPHUKETS—Homer Holland, of Westfield, Mass.: I do not confine myself to the precise details or arrangements which I have had occasion to describe, or refer to, as many variations may be made therefrom, without deviating from the principles or main features of my invention.

But I claim the substitution of nitrate of soda, as an improved agent over common nitre for oxydizing the sulphur of ores, for reasons given in the specification setting forth the difference.

WATER WHEEL—D. S. Howard, of Lyonsdale, N. Y.: I claim the combination of the curved sides and twisted buckets, whereby the water is discharged at or about a right angle with its course in the scroll on entering the wheel when the pressure of the water is applied to the convex side of the bucket, the wheel revolving in the same direction that the water passes through the scroll, as and for the purposes described.

FLUID FAUCET—Joseph Holley, of Brooklyn, N. Y.: I claim the eccentric barrel, having an elastic packing on it, acted upon by an eccentric key, in the manner and for the purpose set forth.

I also claim facing the rubber packing with metal, in combination with the above, for the purposes specified.

CONSTRUCTION OF EAR TRUMPETS—E. G. Hyde, of Cramptown, N. J.: I claim the artificial ear, C, applied to an acoustic auricle or ear trumpet, substantially as and for the purpose described.

[This improvement consists in intersecting the tube of an ear trumpet near where it enters the ear, with a passage communicating with an artificial ear, so arranged as to convey the vibrations which strike it, to unite with those passing through the ordinary tube. The improvement is for enabling persons of defective hearing organs, to hear near and distant sounds far more distinctly, and with less confusion of vibrations than by the common ear trumpet.]

SWING BRIDGES—J. N. King, of Murray, N. Y.: I do not claim a swing bridge poised on a center butment or pier so as to revolve on an axis and leave a water way on both sides of the pier, as that has been done before.

But I claim the combination and arrangement of the springs with the bridge, so that the opening and closing of the bridge shall become automatic, and shall not require the attendance of hands to open or close it, as is usual.

CIDER MILLS—T. J. Kindleberger, of Springfield, Ohio: I claim so arranging the scraper, h, in connection with the roller, E, that it shall perform its office without injury to the edge of the knives, by means of the cam, D, operating substantially in the manner described, for preparing the fruit for the crushing rollers, G, and H, in combination with the apple tilter, K, for the purpose set forth.

APPARATUS FOR PAGING BOOKS—Gabriel Leverich, of Wellsburgh, N. Y.: I do not claim simply placing type on the periphery of a rotating wheel, for the purpose of printing, for that has been previously done in machines termed mechanical typographers.

But I claim, in combination with the type wheels, the adjustable platforms, C C, for the purpose as set forth.

[In this machine, the type for paging are placed on the peripheries of wheels, and the book on an adjustable platform, which presents the proper pages at all times to the type. The type wheels are operated by a treddle worked with the foot, which brings the type down on the proper page, and makes the impression. The machine is very neat and simple and complete in its operations.]

BUOYANT PROPELERS—William Lansdell, of Memphis, Tenn.: I claim the combination of the hollow threads in the form described, with the central and lateral water spaces forming the threads of a screw and securing both flotation and propulsion.

I also claim the use of the flange, arranged on the regular edge of the segments having the true pitch of the regular screw.

I claim also, the peculiar wedge-like form of the ends of the segments, having the effect to diminish the resistance of the immersed section of the head while it increases the propelling force at the stem.

I do not confine myself to the exact proportions of the pitch or form of the ends of the screw or its threads, as represented.

MITER MACHINE—G. W. LaBaw, of Jersey City, N. J.: I claim the combination and arrangement, in the manner described, or in any other manner equivalent thereto, of the several specific parts, or their equivalents, of the described miter and cutting machine, without limiting myself to any particular arrangement of parts, for the purpose set forth.

DOOR LOCKS—William Maurer, of New York City: I claim the arrangement of the notched annular plates, G, segment tumblers, J, spring pawl, D, and band, B, on the casing, A, of the lock, and segment bars, L L, as shown, for the purpose of connecting and disconnecting the band, B from the casing, A, and allowing the bolt of the lock to be operated and secured as described.

[When this lock is locked, the spring pawl, D, projects within a slot in the casing, A, which prevents the band, B, from turning, consequently the bolt cannot be withdrawn nor thrown back. The claim embraces the manner of connecting and disconnecting the band, B, involving an ingenious and intricate arrangement of devices, to make the lock a very safe one indeed.]

SEED PLANTERS—T. S. Minniss, of Meadville, Penn.: I claim the wheel, B, with the sliding or expanding elevators, H H H H through its side, in combination with the lifting box, E, and the spout, F, constructed and arranged substantially in the manner and for the purpose set forth.

SHOE FOR GRAIN MILLS—Henry Mellish, of Walpole, N. H.: I do not claim the invention of a vibratory shoe, as such, through which to pass grain from the hopper to the mill.

I claim the separating shoe for grain mills, as described, having an inclined barrier, e, arranged and operating below the screen, f, constructed substantially in the manner set forth.

PILL MAKING MACHINES—E. A. Pond, of Rutland, Vt.: I claim the hollow working cylinder with a stationary cylinder inside and eccentric to it, the pits on the outside cylinders being perforated, and the perforations supplied with wires bent as described, with a ring around the loops so that the wires are thrust out and drawn in, as described, as the working cylinders revolve.

FORGING MACHINES—S. S. Putnam, of Boston, Mass.: I do not claim the combination of an anvil, its hammer and two lateral hammers made to operate together, so as to enable a bar during its reduction, by the hammers to be compressed, or reduced laterally by the side hammers.

But I claim so combining four hammers together by means substantially as described, that not only may two of them be approaching towards while the other two are receding from one another, but that the momentum of the receding hammers may be brought into action upon the approaching hammers, so as to increase the effect of the blow or blows produced by them as stated.

I also claim two hammers arranged to operate on two opposite sides of a bar in combination with two hammers, arranged to operate upon the other two opposite sides of such bar, each set operating alternately, and the four hammers acting on the four sides, and producing an equality of reduction of the bar, which cannot be obtained by an anvil, to support it, and three hammers operating upon the three unsupplied sides of such bar.

I also claim the described manner of constructing each of the connecting rods, K L, in order that it may not only allow its crank to continue its movement when the hammers strike together or upon a bar of metal, but relieve the cranks and connecting rods from the effects of the sudden blows given by the hammers.

GRASS HARVESTERS—Francis Peabody, of Salem, Mass.: I claim placing the horses at the side of the driving wheel, as described, when the cutters are placed in front thereof, in the manner and for the purpose set forth.

Second, I claim the mold board, H, in combination with the device employed for the purpose of vibrating the cutter bar, when this device is placed immediately behind the mold board, and is connected with the cutter by attachments either to the center or to both ends of the same, whereby a steadier motion of the cutter bar is produced, and the parts which transmit the motion from the driving wheel thereto, are covered and protected from being clogged by the grass, in the manner set forth.

Third, I claim the described spring regulator, constructed and operating in the manner substantially as described, for the purpose of adjusting the distance of the knives from the ground, as set forth.

LUBRICATING COMPOUNDS—E. F. Prentiss, of Philadelphia, Pa.: I claim the manufacture or preparation of a compound which I denominate wool oil of the ingredients, in the manner and for the purposes set forth.

UTERINE SUPPORTERS—H. A. Rosenthal, of New York City: I claim the uterine supporter, composed of the two supporting leaves, a a, and the double shank, c c', combined, to be applied substantially as set forth.

CUT OFF VALVES—David Stoddart, of Cincinnati, Ohio: I claim so arranging the disk, P, connected with the cut off valve, and in relation to the space below P, connecting it, by a passage to the cylinder that the cut-off valve will be operated by steam from the cylinder, as set forth.

GRATE BARS FOR FURNACES—J. C. Schlough, of Easton, Pa.: I do not claim any particular number of mortises and tenons on each bar, as such must be decided by the length of said bars.

But I claim the mode of constructing grate bars for furnaces, with any convenient number of square or oblong tenons on one side, and a corresponding number of similar shaped mortises on the opposite side, substantially in the manner described and for the purpose specified.

REEFING TOPSAILS—Webster Shibles (assignor to himself and Edward O'Brien,) of Thomaston, Me.: I do not claim so applying the upper topsail yard to the topmast and sail, that when the former is lowered, it shall rotate and wind the sail about it.

I claim combining a windlass yard with the upper top sail yard, and applying the windlass ropes to the outer ends of the windlass yard, and to the top sail yard and top mast, substantially as specified, whereby when the upper top sail yard is lowered the sail will be furled, and when raised, unfurled as specified.

SEWING MACHINES—I. M. Singer, of New York City: I claim in sewing seams in cloth and other substances by machinery, suspending the feed motion for the purpose of causing the needle to perform two successive operations in one and the same puncture, to tie the seam, substantially as specified.

And I also claim connecting the pressure pad with its slide, or the equivalent thereof, by means of a long jointed arm, substantially as described, in combination with the feed wheel, or its equivalent, as described, so that the said pressure pad shall move with the cloth or other substance, when fed forward for spacing the stitches, instead of making friction, which would tend to pucker or wrinkle such cloth or other substance, as described, and by which also the cloth is relieved from pressure after the needle has entered, so that it can be turned freely on the needle as an axis, as set forth.

LOOMS—D. W. Snell, of Woonsocket, R. I.: I claim, in combination with the yarn beam and mechanism for producing rotary motion of it, mechanism made to operate substantially as described, and governed in its action by the varying diameter of the yarn beam itself, as specified; the same producing upon the yarn beam a positive let off or regular delivery movement that is independent of, or not governed or controlled either by any positive take-up mechanism, or any mechanism to regulate the delivery of the warps by tension, and rigidly hold them when the lay beats up against the weft.

MACHINES FOR HELICALLY CREASING SHEET METAL PIPES—A. B. Seymour, of Claverack, N. Y.: I claim the plate, B, having a gauge, between the shafts of the creasing rollers, and adjusted by a set screw, so that the proper inclination may be given to the end of the pipe.

CHAIRS FOR DENTISTS' USE—R. A. Stratton, of Philadelphia, Pa.: I do not claim screws and wheels for raising and lowering the seats of chairs, as they are old and well known applications.

Neither do I claim the use of friction rollers exclusively.

But I claim as a simple arrangement for raising and lowering and steadying the seats of operating chairs, the annular piece, L, with its projecting pins and rollers, or their equivalents, in combination with the slotted screw, D, its nut wheel, N, and bracket, F.

GRAIN DRILLS—Chapin Street, of Barre Center, N. Y.: I claim, first, the seed distributor, n, with its seed chambers, o, and dust boxes, o', in combination with the cam wheel, v, the spring, t, and adjusting screws, t and y.

Second, I do not claim the lifting board, h, nor the conductors, p and q, nor drills, r, separately.

But I claim their peculiar arrangement and connection with the sliding cam, e, as set forth.

STRAW CUTTERS—Francis Fitzpatrick, of Cincinnati, O.: I claim arranging the rock shaft, B, on which the arms and knife are so placed as to give a draw cut in front of the straw box, and distant therefrom, so that the tendency of the knife to push away from or leave the straw, shall be resisted or met by the ends of the arms, in a line parallel to the thrust, and thus be held up to the straw, whilst the mouth of the straw box is unincumbered by any machinery to prevent the feeding up of the uncut or delivery of the cut straw, as represented.

PIN STICKING MACHINES—J. B. Terry, of Hartford, Ct.: I am aware that plates for crimping and clamps for holding the paper have before been used; such therefore I do not claim.

But I claim measuring off or gauging the paper to the required unequal distances between the rows of pins, and carrying it forwards to be stuck by means of the feed adjusting ratchet cam, n3, operating in connection with the crimping jaws, g and h, or the equivalents of such devices and their operative gear, so that the crimping jaws have their reciprocating intermittent feed or travel regulated to gradually increase, for a certain number of feeds, and vice versa, that is, the advance action of the crimping jaws made sooner or later, and shorter or longer, without varying their advance terminus, substantially as specified, to measure out the paper into rows or crimps of gradually increasing distance from either end of the sheet to secure the flat close wrap of the sheet from its ends towards the center, as set forth.

I also claim, in connection with the forceps, k, or their equivalents, for taking the crimped paper from the crimper, the double clamps or jaws, E, for holding the crimped paper while the pins are being stuck, as specified.

Further, I do not propose to employ or claim a slide wheel to connect the lower end of the inclined feeding pin conductor, with the upper end of vertical side guides to act as a conveyor and serving to change the position of the pins from vertical to horizontal, whether such wheel be made with or without countersinks on its periphery.

Nor do I claim a separating wheel to sustain the column of pins, separate them, and deposit them separately during the revolution of the wheel in a grooved slide at the proper period, the wheel being made of disks, or with grooves or teeth cut across its periphery.

But I claim the employment, for the purpose specified, of the intermittent revolving cylinder, c, formed on or around its periphery with rows, c', of parallel grooves, of the width of the body of the pin, and corresponding with the grooves in the conductor, and arranged in relation thereto, as specified, and of the length of a pin or thereabout, with a notch or recess at the back end, for the head of the pin, each groove serving to count out and convey one pin at a time, and the whole serving to count out and convey to their horizontal sticking position the several pins in a row, as shown and described.

Also, I claim the manner described of operating the distributing cylinder, c, by means of the vibrating arm, J3, operated from an intermittent rocking shaft, and having a spring ratchet biting into a toothed disk, or the equivalent of these devices to give to the cylinder its counting out and conveying action, as set forth.

I also claim the employment of a striker, c5, arranged at the foot of the conductor, and operating to strike the pin at or its point, as the pin leaves the conductor to change the position of the pin, and hold it to its seat in the distributing cylinder, substantially as specified.

Lastly, I claim forming the inclined conductor at its lower end with an off-set, a', covered by an apron, B, having recesses on its upper edge, to allow of the heads of the pins passing there-through, and having a guide b', on its outer face to carry off the surplus pins, essentially as described.

WHIFFLE TREES—Harvey and Alonzo Webster, of Montpelier, Vt.: We do not claim combining with a whiffle tree a means of suddenly disengaging the traces therefrom, while a horse connected to it is running.

Nor do we claim combining with the whiffle tree, a means of disconnecting it from the carriage under like circumstances.

But we claim the arrangement and combination of the movable spring clamp, b, its cast-off, d, its spring latch, f, and the stationary pin, a, or holder, the whole being applied to each end of the whiffle tree, and made to operate substantially in manner and for the purpose specified.

CORN GRINDER AND CRUSHER—W. D. Wilson, of Richmond Ind.: I claim the general arrangement and combination of the crushing rollers, c c', grinding roller, D, adjustable concave, E, platform, F, and gearing, G H I J K L M, substantially as and for the purposes set forth.

[The grinding roller in this mill has a V-shaped groove on its periphery, and the concave in which it runs has a similar shaped tongue, so that a great amount of grinding surface is obtained in a small space. The arrangement of the parts is also good, producing a compact and simple mill for the purpose named.]

PREPARING WOOD FOR PAPER PULP—M. D. Whipple, of Charlestown, Mass.: I claim, in the process of preparing paper pulp from wood, first, grinding the block upon the surface of a revolving stone, or its equivalent, for the purpose set forth.

Second, I claim maintaining the block in such position with respect to the stone, that the fibers of the wood shall lie in the direction of motion of the stone or very nearly so, for the purpose set forth.

Third, I claim rotating the block during the operation of grinding, for the purpose set forth.

VEHICLES—E. D. Williams, of Wilmington, Del.: I claim the combination of the plate springs, D F, and the spiral springs, E G, connected or attached to the floor, c, of the body of the vehicle and the perch, B, as shown, and using in connection with said springs the straps, H J, for the purpose of preventing sudden longitudinal and lateral vibrations, as shown and described.

[The weight of the load comes upon the thick short ends of the springs, D F, thus allowing the long parts of the springs to be made comparatively light. The springs are also prevented from breaking, as they cannot yield vertically beyond where they come in contact with the floor.]

MOWING MACHINES—Courtland Wilson and Wm. Moore, Jr., of Yardleyville, Pa.: We claim the application of the spring prongs or jaws, i i', and clamp, K, substantially as and for the purposes set forth.

LOOMS—Joseph Welsh, of Philadelphia, Pa.: I do not claim a yielding rest or support for the picker, either to break the sudden blow or concussion with which the shuttle impinges upon the picker, or for other purposes, as this device has been in use in England for some time, and also in this country.

Nor do I claim separating or freeing the picker from the end of the shuttle by the same movement which shifts the shuttle boxes, as this principle has been discovered, and several devices for carrying out the same patented. See patents granted to Barton H. Jenks, April 4, 1855, ante dated Jan. 8, 1855, and Joseph Welsh, Jan. 9, 1855.

Nor do I claim holding the picker forward in movable shuttle box looms, for the purpose of stopping the shuttle thereby, and causing the picker, after having stopped the shuttle to recede, as end by the devices or their equivalents, patented by James Eccles, Jan. 23, 1855.

Nor do I claim the use of a shuttle stopper, as a picker stopper, when the said stopper receives its motion from any part of the loom, and independently of the picker and shuttle box or either of them, as patented by me Oct 3, 1854.

Nor, finally, do I confine my claim herein to the precise devices described and set forth, for conveying either the joint or several action of the stop, A, and acting shuttle, to the picker, as described.

But I claim actuating the picker stopper by means of the shuttle which is required to be relieved from the picker, and so that the top or point of the same may be finally relieved, as described, before the box containing it commences to move, substantially as described and set forth, or by means of the stud, A, in combination with the rock shaft, C, or its equivalent adjustable arm, D, and moving stud, E, irrespective of the action of the shuttle upon the swell, substantially and for the purpose as described.

MAKING PAPER BAGS—Francis Wolle, of Bethlehem, Pa. I claim, first, the conveyor for conveying the folded paper to the apron by which it is carried to the folding and lapping apparatus, substantially as set forth.

Second, the construction of the lappers, 20 and 38, and their connection with their respective lapping tables, 21 and 68, as shown and described.

Third, the arrangement of the drying chamber and the aprons which convey the bags through it, as described, so that the bags are severally delivered to the aprons with their sides in a positive oblique to the direction, in which the aprons move, and thus as they are successively deposited, have the wet laps of their sides and ends left uncovered by their successors.

Fourth, the general arrangement and construction of the whole of the machinery described, whereby a piece of paper of suitable length is cut from a roll, cut out to the proper shape, folded, pasted, lapped, printed in any desirable manner and dried at one continuous operation.

DE-VULCANIZING INDIA RUBBER—Sigismund Beer (assignor to Lewis Feuchtwanger and Sigismund Beer) of New York City: I do not limit myself precisely to the ingredients or process named, as the same is undoubtedly susceptible of considerable variation, without in the least changing the character of the invention or the results produced thereby.

I claim, therefore, the restoration of caoutchouc, gutta percha, or other similar gums, which have undergone the process of being cured or vulcanized, so that those gums may be capable of being used again as a substitute for native gums of like character, or in combination with such gums, by first treating the vulcanized gum with alkalies, or compounds of alkalies and oils, as potash with any common grease or oil, for extracting the sulphur, &c., and then submitting the mass to the action of heat and turpentine or any other liquid known to be a solvent of the gum, in its natural condition, as described.

SEWING MACHINES—Addison Capron, of Attleboro', Mass. (assignor to himself, J. S. Dennis, of Somerville, Mass., and H. M. Richards, of Attleboro', Mass.): I claim combining the needle with the main carrier, by means of a secondary carrier and a spring, or the equivalent thereof, applied to the main carrier, so as to operate substantially in manner and for the purpose before specified.

HAND PEGGING MACHINES—Alfred Swingle (assignor to Elmer Townsend,) of Boston, Mass.: I do not claim combining with an awl holder or haft, and its handle, a spring slider independent of, or separate from the handle and made to play within it, and to slide on the awl; the object of such slider being to draw or force the awl out of the leather sole, or other articles immediately after having been driven into the same.

Nor do I claim a sliding peg receiver or spout, applied to a peg driver and made to move therewith and to operate as described in the patent of William Kidder, and Nehemiah Hunt, dated Aug. 15, 1854, my invention differing essentially therefrom.

But I claim so combining the peg chisel or cutter with the spring slider and the peg receiving and discharging passage thereof that such peg cutter shall be moved upwards with and by the slider, so as to separate a peg from a strip of peg wood, as specified, the same rendering it unnecesary to employ a spring bottom to the magazine as is required when the peg wood is moved against the knife.

I also claim the above specified manner of applying the spring to the peg wood driver, M, and magazine, viz., by employing an elastic band spring fastening it at its two ends to the magazine and the driver respectively and making it to play around a grooved pulley applied to the handle or magazine, as stated, such a method of applying the spring having advantages, as set forth.

PADS FOR HERNIAL TRUSSES—L. E. Hicks, of Boston, Mass. (assignor to himself and Hiram L. Hall, of Beverly, Mass.): I claim, first, an india rubber pneumatic truss pad, without opening or valve and filled with compressed air, as set forth.

Second, I claim making the top of the pad thicker than the bottom or cushion, whereby the former is rendered sufficiently rigid to allow of the attachment of the shank while the cushion maintains its entire elasticity, as set forth.

Third, I claim sinking the button beneath the surface of the pad within the cavity, and securing it therein by the flange, a, by which means the button is surrounded by the annular cushion, and is prevented from coming in contact with the person, in the manner substantially as set forth.

BURNING FLUID COMPOUNDS—Abraham Gesner, of Williamsburgh, N. Y. (assignor to The Asphalte Mining and Kerosene Gas Co., re assignors to said Gesner, and by him assigned to the North American Kerosene Gas Light Co): I claim as a new manufacture or composition of matter, the burning fluid composed of alcohol and B kerosene, as specified.

AMALGAMATING THE PRECIOUS METALS—L. R. Streeter, (assignor to himself and Ira Leonard,) of Lowell, Mass.: I claim forcing mercury at any required degree of pressure into ores to be amalgamated, when the ores are enclosed in a mercury-tight cylinder, or receiver, substantially as and for the purpose set forth.

DESIGNS.

THREE DESIGNS FOR COOKING STOVES, AND ONE FOR A PARLOR STOVE ante-dated April 9, 1855—S. D. Vose, of Albany, N. Y.

SEWING BIRDS—John North, of Middletown, Ct.

PARLOR STOVES—A. J. Blanchard, (assignor to Blanchard, Tarbell & Co.,) of South Reading, Mass.

COOKING STOVES—A. J. Blanchard (assignor to Blanchard, Whittemore & Co.,) of South Reading, Mass.

[In the above list of patents fifteen of the cases were prepared at this office.

The Newfoundland Sub-Marine Telegraph.

Mr. Field, the managing director of the company for the laying down a submarine telegraph wire between London, Newfoundland and New York, has made a contract for the Submarine cable to connect Newfoundland with Cape Breton. This cable is to be 70 miles in length. The company confidently expects to have telegraph communication established between New York and St. Johns, Newfoundland, by the first of July next. When this telegraphic communication is completed, it is intended that the Collins steamers shall call at St. Johns on both their outward and inward voyages.

The American ships engross four fifths of the carrying trade between the United States and France.

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Captain Ericsson Himself Before the Public.

The following is a letter from Capt. Ericsson, in the New York *Daily Times* of the 28th ult:

NEW YORK, Thursday, May, 24, 1855.

SIR: The assertions of my opponents that the caloric engine has failed and been abandoned, and that a "new steam engine" has been put into the *Ericsson*, are wholly unfounded.

Every trial made has proved the soundness of the *principle* of the caloric engine, an extraordinary saving of fuel being in every instance well established. I have deemed it prudent, however, not to publish certain facts conclusive as to ultimate success, because it would have encouraged many to help me to "improve," and deprive me, if possible, of the fruits of much labor and expense.

The first engine of the caloric ship was removed, notwithstanding its economy, because it proved too cumbrous for the amount of *available* power it exerted—in other words, because the differential force of the working and supply piston did not prove in practice to realize what calculation promised—losses by leaks, friction, &c., being much greater than reasoning could anticipate. The second engine was applied to remedy this deficiency of power, by employing compressed air, but it was found that the joints of the pipes of the heaters could not be made sufficiently tight to carry more than one-third of the intended requisite pressure. Accordingly, this modified engine proved inadequate to give a speed of more than seven miles an hour to the ship. Apart from the imperfections connected with the leaks alluded to, the machine worked to the admiration of all who witnessed its operation. But although *air* thus escaped through the joints, steam, it was found, could only be retained in the heater pipes, and was therefore employed in a surcharged state, in place of air. It was under the agency of surcharged or overheated steam that the machinery operated on the day of the sad accident of sinking the ship. The sudden immersion and cooling of the furnace pipes, &c., unfortunately destroyed a vital part of the contrivance, and after fruitless attempts to repair and patch, no alternative was left but to apply ordinary boilers. The *engines*, however, are now without alteration; the same as when compressed air was employed. The statement that "new steam engines," planned and constructed for the purpose, have just been put into the ship, is pure fiction. I promised the owners of the ship, on proposing to remove the original caloric engine, to build the second one in such a manner, that if we failed in using air, steam might be resorted to by replacing the air heaters by steam boilers.

The stories relative to the "burning of the bottoms" of the original caloric engine I have deemed it unnecessary to notice, as many practical means obviously might have been adopted to overcome the difficulty. Numerous have been the suggestions I have received from correspondents in various countries, all proving that I am not alone in thinking that the "incurable burning of the bottoms" was, after all, no serious matter.

The positive assertion, that I have altogether abandoned the caloric engine, is a base calumny. The subject has been by me unceasingly prosecuted. Experiment has succeeded experiment, and continued exertions have been made to devise and perfect the useful mechanical expedients for rendering the incontrovertible physical laws involved in the principle of this machine subservient in producing a cheap and harmless motor. How far I have succeeded in the final practical solution of the great problem will soon become known, as I am now engaged in building a test engine of considerable magnitude.

Possibly the performance of this test engine will prove the conductors of certain scientific publications more at fault in their opinion of the caloric engine than Sir Humphrey Davy was when he ventured to ridicule the proposition of lighting London by gas.

Let me add, that should some unexpected difficulty prevent a full realization of the capabilities of the new system when the said test engine shall be put in operation, such an event will by no means stop the prosecution of the matter—nor will any mechanical difficulty whatever cause the writer ever to abandon a plan so eminently based on physical truth, and fraught with such vast beneficial results when perfected. It is much to be regretted that so important a matter should be in any manner retarded by the obtrusive interference of persons who do not possess knowledge enough to understand that our present motor, the steam engine, working as it does within very limited range of temperature, and constantly wasting the caloric, never can be made an economical medium of transferring the force of caloric for motive purposes. Happily, whilst those who only pretend to science thus assail the good cause, the highest authorities support it. The late British Association in England discussed the matter at length, the inferiority of steam as a motor being fully established. The celebrated Regnault—the greatest living authority in relation to caloric—in a memoir to the French Academy, after discussing the relations of force produced and range of temperature, says: "But, as in the Ericsson system, the heat which the air gives out is given up to bodies, from which the entering air takes it again and brings it back to the machine, we see that theoretically *all the heat expended is utilized* for mechanical work; whilst in the best steam engine the heat *utilized in mechanical* work is not the one twentieth part of the *heat expended*." Endorsed by such authority, and fortified by such opinions, the writer disregards assailants, and will continue to labor at the perfection of the caloric engine until the end is achieved.

I am, Sir, very respectfully, your obedient servant, J. ERICSSON.

To Lieut. Gov. H. J. Raymond.

[This letter was written to Mr. Raymond in reply to personal inquiries, and the *Times* introduces it in the following sentence:—

"The public press, for some weeks past has teemed with reports that the caloric engine has proved a total failure, and that the principle on which it was constructed had been finally abandoned by Capt. Ericsson, who had substituted steam engines in the ship with which his experiments were made."

The above sentence from the *Times* is a disingenious mode of saying what is not correct in fact, and Capt. Ericsson must meet the same charge from his own self, for in the first sentence of his letter he denies that the caloric engine has failed, and been abandoned, and that "a new steam engine" had been put into the *Ericsson*, while in the commencement of the third paragraph, he then says, "the first engine of the caloric ship was removed, &c." Now, since we all know that steam engines have been substituted for them, it makes no matter whether these engines are old or new, they are steam engines and not hot air ones—that is the grand criterion point. Neither Mr. Raymond nor Capt. Ericsson dare deny this. Why do they not, then, like honest upright men, tell the downright truth about the matter. This would be creditable to them, for the best of men make mistakes, and Capt. Ericsson is not immaculate. Who his *opponents* may be, we do not know. Ericsson, the engineer, may not abandon hot air while he lives, but *Ericsson* the ship, after giving it a most expensive and thorough trial, has abandoned it for steam.

He says in the above letter, that the hot air engine was abandoned (there were two of them) because it was found to be too cumbrous for the power it exerted, on account of "losses by leaks and friction."

In the *Times* of Jan. 12th, 1853, he stated, "the pistons do not chafe, and hence there is little or no friction."

He now says these engines were too cumbersome, but if his principle of using hot air is correct, why did he not just enlarge his cylinders. In the *Times* of the same date referred to, he again said, "Were we able to introduce cylinders of 20 feet diameter, we should be able to surpass anything that floats on the ocean, and the effect of the improvement would be extraordinary. The enlargement of the cylinders would not cause them to occupy a much greater space in the ship, so that there would be *no appreciable want of room.*" We have put these two statements together in order that the public might "look on this picture, and then on that."

Capt. Ericsson says in the above letter, that he is now going to build a *test* hot air engine. What in the name of common sense were the huge air engines of the *Ericsson* built for?

Let us again turn to Capt. Ericsson in the *Times* of January, 1853. He was asked, "are you perfectly satisfied with this trip of the *Ericsson*?" He answered, "It has exceeded my highest expectations—the engine has effected more than I had any reason to anticipate." In answer to another question he said, "I have never been at a loss for means, by making representations to your capitalists. I met a number of merchants, supported by other gentlemen of capital, who afforded me *ample opportunity of testing* the caloric principle on this large scale. The thing is accomplished; there is no remaining difficulty in the way which cannot be met, there is no doubt that cannot be answered. The principle has been tested long enough to prove that it is reliable, feasible, and successful." We advise him and Mr. Raymond, before they write any more on the *Ericsson* and hot air engines, to read the back numbers of the New York *Times*—our Lieut. Governor especially will find them very instructive in his editorial capacity.

Capt. Ericsson quotes Regnault as sustaining his views; we must deny the correctness of this. As our authority, we refer to the report of a paper read by Regnault to the Academy of Sciences (Paris) on the specific heat of gases,—translated for and published on pages 115 and 116, Vol. 28, *Franklin Journal*, 1854. The whole article militates against Mr. Ericsson's views of hot air, as carried out in his engines, by his *Regenerator*. The paper of Regnault, instead of furnishing proof of economy, for the mechanical work done by saving the heat by that Regenerator, says, "the useful work done by hot air, is more nearly expressed by the heat lost in the fall of the temperature in proportion as the machines are more perfect."

Capt Ericsson's fling at those "pretending to science assailing the good cause," thus recoils upon himself.

The best answer to the above letter, as it relates to the economy of steam and hot air, was published in the *Times* itself, of the 30th, giving an account of the trial trip for thirty hours of the *Ericsson*, with her steam engines. C. H. Haswell, the well-known engineer, who was on board, has reported that the consumption of fuel, according to the speed of the ship, was less in proportion than that of the *Ericsson* with hot air, and the low estimate of 7 tuns of coal per 24 hours, for the speed was about double with the use of two-thirds less fuel—21 tuns—whereas it should have been 28 tuns, estimating the resistance according to the square of the velocity, and according to the "cube" 196 tuns.

The Ericsson under Steam.

The following is the Report of Chas. H. Haswell to J. B. Kitching, Esq., a copy of which he has kindly furnished us. It is more concise, and yet more full and complete, than the account published in the *Times*, to which we have referred above:—

NEW YORK, May 30, 1855.

DEAR SIR: Having, in compliance with your request, embarked on board the steamer *Ericsson*, on the 28th inst., for the purpose of witnessing the performance of her machiney, and having received authority from you to control the operations of it in such a manner as I saw fit, for the purpose of advising myself of the consumption of fuel in her furnaces, speed of vessel, &c., I have now to submit the following report of my observations, and for the purposes of ready comparison and estimate of the value of the elements submitted, I give the following particulars of hull and machinery:

Hull—Length on deck, 250 feet; breadth of beam, 40 feet; depth of hold, 27 feet.

Draught of Water—Forward, 17 feet 2 inches; aft, 16 feet 10 inches (mean 17 feet.)

Coal and Water on Board—550 tuns.

Area of immersed midship section at this draught—546 square feet.

Machinery—Two inclined engines of direct action.

Cylinders—62 inches in diameter by 7 feet 8 inches stroke of piston.

Water Wheels—32 feet in diameter by 10 feet in width.

Boilers—Two vertical tubular, supplied by fresh water from the external condensation of the steam: natural draught to furnaces.

Cut Off—Drop valve with adjustable arrangement, set in this experiment at 45 100ths of stroke of piston.

Dip of Water Wheel Blades—4 feet 6 inches.

Coal—Anthracite, Pittston, Bituminous, and Cumberland.

RESULTS OF EXPERIMENT—1st. *Anthracite.* At sea, May 28th, 1·45 P. M. to 2·15 A. M., 29th, 12 hours and 30 minutes, consumed 26,400 lbs.: 2.112 lbs. per hour, or 0·94 of a tun (of 2240 lbs.) per hour.

2nd. *Bituminous*—At sea, May 29th, 2·15 to 11-30 A. M., 9 hours and 15 minutes, consumed 15,390 lbs.: 1.664 lbs. per hour, or 0 74 of a tun per hour.

3rd. *Anthracite*—At sea, May 29th, 11·30 A. M. to 1·45 P. M., 2 hours and 15 minutes, consumed 4,320 lbs.: 1,920 lbs. per hour, or 0 85 of a tun per hour.

RECAPITULATION.

1st.	12 h. 30 m. × 2112 lbs.	=26,400 lbs.
2nd.	9 h. 15 m. × 1664 lbs.	=15,392 lbs.
3rd.	2 h. 15 m. × 1920 lbs.	= 4.320 lbs.
	24h. 0m.	46,112 lbs.

the total consumption for 24 hours=20·58 tuns.

The average pressure os the steam was 22 5-8 lbs. per square inch; the vacuum 27½ inches, and the average revolutions of the engines 13 3-8 per minute. The speed of the vessel, as measured by a chip log, with 25 fathoms of stray line, was 11 knots large= 12·83 statute miles per hour.

The fresh water condensers maintained an uniform vacuum of 27½ inches of a mercurial column, and by the aid of an auxiliary distilling vessel, more water was readily obtained than was required to meet the loss by vents and leaks from the boilers, pipes, &c.

With a view to test the evaporative qualities of the boilsrs, and at the same time to verify the extraordinary results here given, in economy of combustion, the water of condensation therefrom was, at six different periods, measured in a vessel, and the supply was found to reach the unexampled quantity of 9·96 lbs. per pound of anthracite coal consumed, and notwithstanding this unprecedented attainment in a marine engine, it could have been very materially increased with better firing of the furnaces.

In conclusion it may not be amiss for me to add, that all the elements of means and results here given were noted by myself, so far as it was practicabie to do so, and such as I had to transfer to the observation of others, were alone confided to my two assistants, who accompanied me on this occasion for such services. I am, respectfully, yours, &c.

CHAS. H. HASWELL.

JOHN B. KITCHING, Esq., New York.

[The amount of water evaporated by one pound of coal, by the boilers of this vessel, is greater than those of any other steamship with which we are acquainted. The economy of the fuel is attributable to the boilers, and if Capt. Ericsson planned them he deserves great credit, although it may be said there is little, if anything, new about them; the results, however, are good, and he who has accomplished any useful result, deserves the honor which is his just due.

The whole economy in fuel, however, in the *Ericsson*, is not superior to that of the steamer *Brandon*, a brief account of which was given on page 11, this volume SCIENTIFIC AMERICAN. That steamer made the voyage, with a full cargo, from Havre to this port, in 16 days—frequently running 12 knots an hour, with an average consumption of only 15½ tuns of coal per day.

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New Inventions.

Velocitrat Lubricator.

The patent granted for a lubricator for machinery to George Dixon, of Lafayette, Ind., bearing the above name, and the claims of which was published on page 294, SCIENTIFIC AMERICAN, two weeks ago, embraces a very ingenious apparatus. The oil cup is applied to the crank pin of an engine, and has a steam valve in it, which is made to open at every downward motion of the connecting rod, owing to the movement of the latter being quicker. This allows the oil to escape on the crank pin in a jet, when it closes by its own gravity, shutting off the oil until the connecting rod makes another downward stroke. By this method of lubricating (there being also a regulating screw in the cup) the exact quantity of oil is supplied at every stroke by a positive motion.

Michigan Philanthropy for Ericsson.

We have now before us a printed circular headed "State of Michigan," and signed "Naw-Beck," suggesting that subscriptions be taken up for Capt. Ericsson throughout the United States. The mover of this enterprise says he is a native of New York, but has resided in Michigan for thirty years, and is well known to Gen. Cass. He suggests that the people of different States, form themselves into County Committees, unite their subscriptions, purchase drafts on New York, payable to John Ericsson, and forward them to John Thompson, Wall street. This philanthropic individual is still full of caloric, and looks upon the Caloric Engine as one of the greatest discoveries of the age. He compares Ericsson to Christopher Columbus, and sets him above Fulton. He had read, as we can perceive from his remarks, one of the floating paragraphs from some obscure source, which were recently propagated, respecting Capt. Ericsson having expended his whole fortune and that of his wife, and which had led to their separation. We have been informed that this report respecting his family affairs is entirely destitute of truth.—"Naw-Beck," who appears to be a hot-hasty philanthropist, desires that the contributions should all be made up by the next Fourth of July. We hope "Naw-Beck" will subscribe liberally; he no doubt ought to know, away out *there*, far better about such matters than the people *here*,—who generally do not yet know who paid all the expenses of the *Ericsson*, or whether they are all settled.

Rounding and Beveling Barrel Heads.

The accompanying figure is a perspective view of a machine for the above named purpose, for which a patent was granted to Joel P. Heacock, of Marlborough, Ohio, on the 7th of March last year.

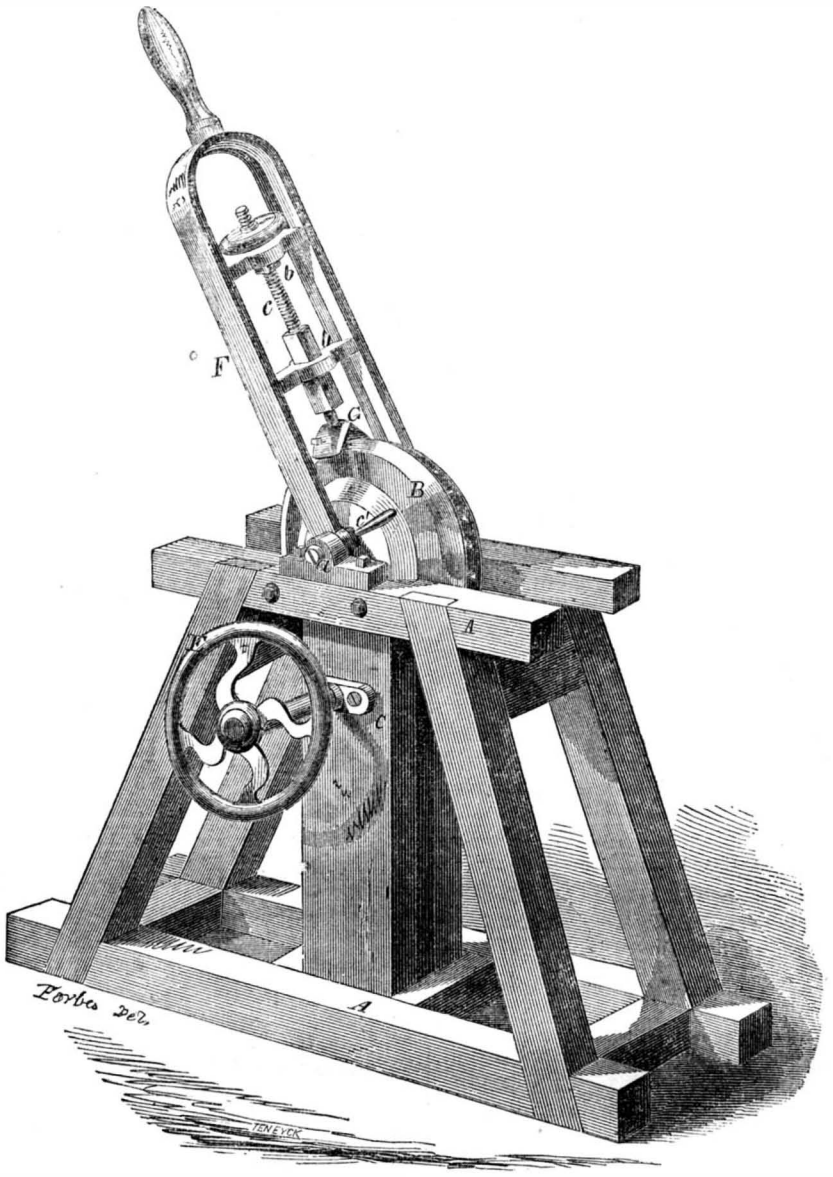
The nature of this invention consists in the employment of two jaws or clamps for holding the stuff for making the barrel head, in combination with a double edged or V-shaped adjustable cutter, which is attached to a swinging lever, that is moved back and forth in the path of a circle from a horizontal to a vertical position, and vice versa, and thereby made to give the proper shape and bevel to the stuff intended for a barrel head.

A is a stout frame. B represents two circular plate jaws secured on the top of two legs, C. One of these legs is made fast to the frame; the other is moved out and in at the top, to open and close the jaws, by a screw on the shaft of the hand wheel, E.

F is a forked lever secured on an axis pin (one on each side of the frame,) working in bearings. The prongs of this lever are united together by cross ties, *b b*. G is a V-shaped adjustable cutter on the end of a screw shank, *c*. On the top of the screw is a nut wheel above the cross tie. By turning this wheel to the right or left, the cutter, G, is elevated or depressed. The small handle, *c'*, is the lever of a dog bolt, which passes through the center of the jaw, C, and centers, and holds the stuff. This dog bolt is capable of turning and describing a semicircle.

Supposing the stuff to form a barrel head to be placed in the open jaws, B, by turning wheel, E, to to the right, the off jaw will close, and retain the stuff to the action of the knife. The lever, F,—by its handle—is then pulled down from a vertical to a horizontal position towards one end of the bench, which rounds and bevels the barrel head from where the knife commences to act, until the end of the cut. The lever is then varied to

ROUNDING AND BEVELING BARREL HEADS.

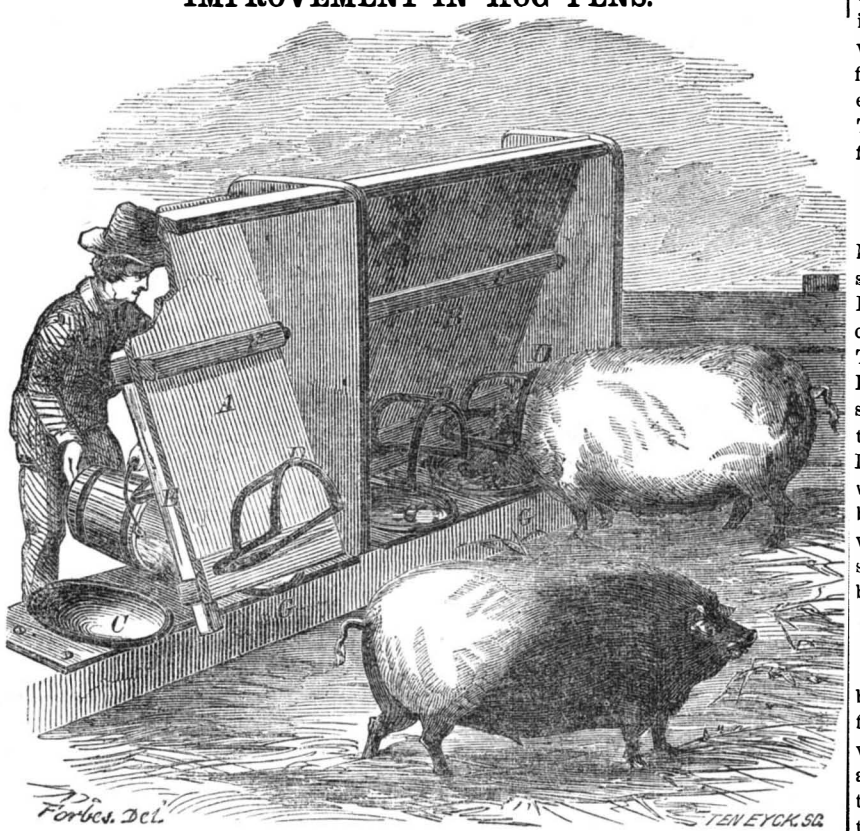


of the stuff to the proper position, to undergo the same operation as that described for the rest of the barrel head, thus completing and giving it the proper shape to fit the croze of the barrel.

The operation of this machine is exceedingly simple, and will be readily understood and appreciated.

More information may be obtained by letter addressed to the patentee.

IMPROVEMENT IN HOG PENS.



The accompanying figure is a perspective view of an improvement in the construction of Hog Pens, for which a patent was granted to R. M. Abbe, of Thompsonville, Conn., on the 29th of last August.

The improvement relates to the construction of the trough guards. A pen is first built of the requisite size for a certain number of hogs, and on the front part of it the improvement is placed. A B are swinging fronts intended to swing inwards, on F F, when cleaning out the troughs or feeding (as shown with front, A at E) and thus prevent the hogs interfering with any of these two operations. When the feed is placed in the trough, the swinging front is brought into place and made fast, by a bar, or button, as shown by B, thus allowing the hogs free access to the troughs, C C. These troughs are made of cast iron—oval formed basins,—and firmly secured in a frame, G. D D D are iron guards, one for each trough; these prevent the hogs from interfering with one another while feeding. They are fixed on the swinging frame inside the pen, and being secured with screw bolts, they can be raised or lowered to suit the size of the hogs. They are placed so as to allow each hog to pass his head in, but not his feet and feed freely. The latter is an ugly custom with hogs in common pens, by which they waste and foul their food.

By this method of constructing hog pens, the troughs can be easily cleaned out, and thus kept in proper condition. The health and growth of hogs are both greatly promoted by keeping their troughs clean, for it is certainly injurious to them if fresh food is mixed with any surplus that has been left from a previous meal, and suffered to ferment and become offensive. This method of constructing hog pens also saves food, by preventing waste, the grunters being very senseless animals in this respect, by getting into the trough with their fore feet and scattering their food on the floor.

More information may be obtained by letter addressed to the inventor.

Important Patent Case.

THE WOODWORTH AND NORCROSS PLANING MACHINES—An interesting trial at law between James G. Wilson and W. Van Hook, as owners of the Woodworth patent, and J. B. Church and J. W. Ogden, as defendants, using the Norcross machine, was terminated in this city before Judge Nelson, on the 29th ult. The complaint was that the defendants were infringing the Woodworth patent, and the trial was to decide this. The Judge limited the number of experts to two on each side, and circumscribed the range of testimony. In five days after the trial commenced all the testimony was taken, and the counsel on both sides (Keller for plaintiffs, Stoughton for defendants) had summed up. The Judge charged that two issues were involved, one for the planing part of the machine, and the other for a part of the tongueing and grooving. The jury brought in a verdict negative to the complainants except for the using a cutter for smoothing the edges of their tongued and grooved boards. The whole case may be said to have been in favor of the defendants.

Dry Dock Patent.

A motion for an injunction—before Judge Nelson, in the Circuit Court U. S.—to restrain Samuel Loveland from using the Dry Dock at the foot of Delancy street, this city, was denied with costs, on the 30th ult. The complainants were S. Williams and A. B. Hathaway, who claimed that the use of said dock was an infringement of the plaintiff's first patent, they having two on Dry Docks. The defence asserted, that if there was any infringement, it was not the first but the second patent of the plaintiff's on which the complaint was made; the Court seemed to view the matter in the same light, by refusing the injunction.

How to Prevent Worms on Trees.

Bore a hole into the tree the size of roll brimstone, six inches in depth, say four feet from the ground; fill the cavity four inches with the roll brimstone, plug two inches, and seal over with pitch. The sap absorbs the sulphur, and imparts a healthy hue to the leaves; beside being very offensive to the worms, it causes them to leave for parts unknown.—[Exchange.

Doubtful.

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Scientific American.

NEW YORK, JUNE 9, 1855.

Materials for Paper.

The demand for paper has increased so rapidly during the past five years, that the price of the raw material—cotton rags—used in its manufacture, has advanced to such a degree as to excite attention, and challenge inventors to produce a cheaper substitute. Various materials have been proposed to us from time to time, as substitutes for rags, such as sea grass, Florida grass, the cotton plant itself, and other vegetable productions. One paper in our country, the Philadelphia *Ledger*, has been printed for some time on a composition paper of 66 per cent. of straw and 34 rag pulp, made by Mellier's process. This paper has a firm grip, and looks tolerably well, still, it affords evidence that even the common qualities of printing paper have not yet been made from straw alone. It is, however, a great improvement on the best straw paper hitherto made, and it may be still further improved. During the last fall, G. W. Beardslee, of Albany, N. Y., exhibited to us some pulp and small samples of paper made from wood, and he stated, that from the experiments which he had already made, he was satisfied he could make as good paper from different kinds of wood as from cotton rags. During the past winter he has been prosecuting his experiments, and the result is now before us in some copies of the SCIENTIFIC AMERICAN, printed on Bass wood paper, likewise some writing and other samples of paper sent for our use, to test their qualities. We have also examined various kinds of paper made from different kinds of wood, by Mr. Beardslee—from wrapping to fine drawing paper, all of a very superior character. The manufacture of paper from numerous kinds of grasses, straw, and wood, is not a new thing under the sun, all this was done long ago, but the question is one of economy—the production of cheaper paper than that made from rags. Jacob Christian Scaffers, a German theologian, printed a book in 177 2 on 60 specimens of paper, made from as many substances, such as straw, wood of various kinds—willow, beach, &c.—and a number of grasses. In fact, it has long been known, that paper can be made out of every vegetable material of a fibrous character, but cotton rags have hitherto been furnished so cheap, as to defy competition from any other. This has been the case especially since the discovery of bleaching by chlorine, by which the blackest and dirtiest calico rags, which before that time were used for making wrapping paper, can now be bleached as white as snow.

As this is a question of economy entirely, Mr. Beardslee has informed us that he can make paper from wood as cheap as that made of cotton rags, even if the latter cost nothing. We wish success to the discoverer of every improvement in the manufacture of cheap paper, for it is the grand vehicle for spreading knowledge among men.

The New York Crystal Palace Association. Indignation Meeting of British Exhibitors at London.

The London *Times* of May 11th, contains a report of a meeting of some of the foreign exhibitors at our late Crystal Palace, to concert measures for the recovery of their property, alledged to be detained by the N. Y. Crystal Palace Association; also to procure compensation for damages, &c.

The call for the meeting originated with a Mr. W. G. Rogers, who, on being invited to act as chairman, announced himself as a very severe sufferer. He said he sent a splendid mirror to the New York Exhibition worth $1700, but after the shipment, could get no tidings of the goods, until at last, one day, being in the London Dock, he saw the case, which had been returned. He soon after ascertained that the glass and moldings of the frame were smashed all to pieces. To aggravate the case still further, a bill of $75 dock charges was demanded of him by Mr. Major, agent of the Association.

Mr. Arrowsmith said he had sent over a cabinet worth $1200, but had no idea now of its whereabouts. Mr. Moore was anxious to get back his goods, value $1500. Mr. Jennens said his firm had had $1000 worth of goods spoiled.

Mr. Loft had been informed by a gentleman in Dublin that he had two valuable carriages there, which he could not get back.

The Chairman remarked as a singular fact that a large quantity of armor from the Tower was there, and he supposed the Queen would have to send a broker over to get it back again. [Laughter.]

Mr. Frewen was himself at New York last October, when he saw broken painted windows lying under a counter to the value of $2000. He had himself a painted window there which he could not get back.

Several other gentlemen made statements as to the value of contributions which they could not get back, and complaints as to the careless manner in which their property had been treated, and faith broken with them by the New York Association. The bankruptcy of the Association was imputed to the lukewarm manner in which the New York public had supported the Exhibition.

Mr. Penny inquired whether the President of the United States had been written to on the subject? He had opened the Exhibition officially, and an application ought to be made to him.

After an animated conversation, in the course of which it was stated that no exhibitor present had received any order from America in consequence of the Exhibition, or sold any article exhibited, the meeting was adjourned for a week, to give time for further inquiry and consideration.

The above statements and complaints, if they were all true, would be sufficient to stir up the indignation of any gentleman of less irrascible temperament than Mr. Rogers. They would be enough to brand with infamy the names of every manager of the Association who had the least connection with the alleged transactions.

We are happy in having grounds for believing that Mr. Rogers' indignation meeting was somewhat premature.

In reply to these gentlemen, Mr. John H. White, formerly a President and now the Receiver of the Crystal Palace Association, has published a very lucid statement, in which each particular grievance is examined and answered.

In regard to Chairman Rogers' looking-glass, he says:—"In consequence of BAD PACKING when it was put up for exportation to this country it was found, on opening at the Palace, that the glass *was* "smashed," and the beautiful carving more or less injured. When the case was taken off the vessel *the broken pieces of glass rattled in the box*. I have a certificate of these facts from the persons who assisted in removing the case from the vessel. It was not the fault of the Association that the glass was *smashed* and the carvings injured, but the fault of Mr. Rogers' *packers*.

I may add, Mr. Rogers was notified of the damage which his case had sustained immediately after the fact was ascertained. Mr. Rogers further stated that "he received a bill of £15. 3s. 10d. for dock charges from Mr. Major, *the shipping broker appointed by the New York Association*," and which of course (he adds) he "declined to pay."—Now I assert that no such charges were ever imposed by the Association, nor did the Association ever authorize Mr. Major to impose them.

"Mr. Arrowsmith's cabinet," he says, "is now in the Palace, and in good order. This is the first intimation I ever had that he desired to have his cabinet returned.

The Dublin carriages referred to have long since been returned.

Mr. Frewen failed to state how those windows came broken—whether they were broken at the Palace, or by reason of careless packing on the part of the exhibitor, and whether the Association had not in all cases settled for breakage done by employees at the Palace? Any article he has at the Palace awaits his order, and I deny that he was ever refused possession of any article he claimed. His statement about broken glass is so indefinite that it lacks potency for want of particulars."

Other items of complaint are also satisfactorily accounted for. Mr. White says that one reason why there were so few sales of foreign articles, was the exhorbitance of the prices put upon them by the owners. The statement that no foreign exhibitor received an order or sold an article on exhibition, we know is not so, although the sales did not amount to very much. The assertion that the President opened the Exhibition officially is ridiculous. He was a mere guest, invited by the owner, like many others on that occasion, to give zest to the enterprise—a sort of advertisement for the stockholders.

The Association has unquestionably broken faith with its foreign exhibitors in refusing to pay the return freight on all goods sent home. It originally agreed to pay transportation both ways, and should have done so if the building had to be taken down and a post at a time sold at auction to raise a few dollars for the purpose, but having latterly become bankrupt through the wretched and imbecile management of its first President and aristocratic Directors, and since by the *Barnumization* it has gone through—it now leaves all its creditors, foreign and domestic, in the lurch. If Mr. White is to be believed, however, its intentions are good. The Association means to pay its debts, and some time or other to compensate the foreign exhibitors for the return freight, with interest. At present, if levy were made, the returns would exhibit nothing but old iron and window glass. Creditors must bide their time. We have more confidence in the management and statements of Receiver White, than in any executive officer previously employed by the concern. If anything can be saved from the wreck he probably can do it.

Opening of the Paris Exhibition.

Although it was generally believed, until within two days before the 15th, that the Exhibition would not be opened on that day, owing to the incomplete arrangements, yet it was determined by the Emperor not to disappoint the public again; so on the 13th the *Moniteur* published the official programme. The day of inauguration was not propitious; it was cold and damp, with a drizzling rain, and this made it very uncomfortable for spectators, who had been exhorted to wear dress coats. When the doors were opened, at ten o'clock, the spectators poured on in a huge stream, each endeavoring to get a good seat, and soon there was exhibited a rich display of jewels, dress, and French beauty. The Diplomatic Corps, the officers of Government, the Senators and Legislators, were dressed in official costume, offering a marked contrast to the plain dress of the civilians, especially the Americans. About eight thousand persons were present when the Emperor and Empress entered, accompanied by the officers of the household, magnates of the realm, and the ladies of the Court. They approached the stage on which a throne was erected, and each took his and her proper place in view of the whole audience. The scene was a thrilling one in point of display, and rich strains of music from hundreds of instruments grandly reverberated through the lofty arches. There was not much *palavring* made, nor time wasted. Prince *Jerome*, President of the Commission, at once proceeded to read a speech to the Emperor, and to it the latter replied in a few words, in which he requested him to return his thanks to the Commissioners for their zeal and care, and concluded as follows: "I open with joy the Temple of Peace, which invites all nations to concord." The Exhibition was now officially opened at half past one P. M.—in one short half hour after the ceremonies were commenced. This greatly pleased the spectators, for the day was disagreeable, and not well calculated to create enthusiasm for long-winded speeches. The interior of the building appeared somewhat sombre and dull, owing to its color, except once or twice when a few struggling sunbeams burst from the clouds and shed their rays through the painted windows. The effect was magical; for the rich light kindled into beauty a thousand different objects unseen before. This was but a foretaste of what may yet be expected when all the departments are complete, and basking in a full flood of light.

Steam in Sewers.

It is well known that many of the steam engines employed in cellars in our cities exhaust their steam into the sewers. We have always believed that this was beneficial in destroying miasma and noxious effluvia, but the New York *Times* of the 30th ult. condemns the practice. It says, "It is undeniable that steam thus thrown into the sewers keeps their contents at a temperature most favorable for rapid putrefaction, and at the same time, by creating an outward pressure, is constantly forcing the poisonous gases into the streets." It then calls upon the Board of Health to examine into the matter. We deny that steam thus thrown into the sewers favors rapid putrefaction. On the other hand, we are positive that it tends to prevent putrefaction, and at the same time destroy noxious effluvia. High pressure steam is employed in some of the London hospitals for disinfecting clothes, feather beds, &c.—High pressure steam is a purifying agent, and it destroys animal and vegetable putrefaction at once. Every ten horse power steam engine exhausting into a sewer, sends at least 6250 lbs. of water through it every day, and as hot water is superior to cold for detergent purposes, every such steam engine in our city must be a sanatory agent.

Eruption of Mount Vesuvius.

The late news from Europe contains accounts of a new eruption of Mount Vesuvius upon a grand scale,—the greatest that has occurred for centuries. The report of its sublime grandeur had attracted thousands from all parts of Europe to witness the scene, and the road from Naples to the vicinity of the spectacle was continually crowded with spectators going and returning. The discharges of the volcano are represented to have been terrific, and the lava poured over the lips of the crater in huge swelling waves, sweeping downward and onward over vineyards and villages that had flourished for centuries. The lava, like torrents of burning brass moved slowly but unresistingly forward, hissing and sparkling as it met with obstacles in the way, then accumulating and flowing over them, "eating up every green thing." Houses and stone wall fences, furnished no effectual resistance to its course, it flowed down a resistless sea of fire. The sides of the crater resembled those of a red hot boiler. It was feared that the towns of St. Sebastiano, Massa, di Somme, and Pollena, would be destroyed. Cercola has already fallen, and it was thought that a destructive explosion, throwing huge rocks and piles of burning ashes far and near, and scattering death and ruin around, would conclude this grand eruption.

The Street Sweeping Machines.

The company operating these machines in this city, show their efficiency in a most marked degree, by the manner in which they keep their districts clean. Thus far they have operated well, and have given great satisfaction to the inhabitants in the streets on which they are used.

The Minnie Rifle.

The committee of the Association of French Inventions has decided that the Minnie rifle shall in future be called the Delvigne Minnie rifle, M. Delvigne having declared that while he reserved to himself the priority of the invention, M. Minnie introduced improvements tantamount to original inventions.

Packing Snuff in Lead.

The Annales d'Hygiene of Paris has published an article pointing out the danger arising from packing snuff in lead, as the damp in the snuff acting on the lead oxydizes it, and forms a soluble salt of a poisonous nature. The tobacco administration of France has acted on this advice, and discontinued the use of the lead envelopes.

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Foreign Editorial Correspondence.—No. 2.

Paris Exhibition, &c.

PARIS, May 9, 1855.

I have made almost daily visits to the Palace of Industry, and have watched with much interest the rapid progress which is made by every day's labor of about 3,000 workmen. The spacious avenues and galleries of the buildings are crowded with boxes from every quarter of the civilized globe. The United States Department alone stands motionless and gloomy, like the deserted halls of an old castle. Very few articles from the Great Republic have as yet made their appearance, but as a relief to the monotony which hangs over our valuable space in the principal building, workmen are busily employed in preparing the throne of the Emperor of France—to stand upon Republican ground.

In the Machinery Arcade, mentioned in my last letter as containing about 40,000 square yards, the utmost activity is displayed. Every day witnesses great progress in its condition, and it is quite evident that the display of machinery will be enormous. There are already in the Arcade two powerful locomotives, oscillating marine side lever and horizontal engines, of many patterns, all kinds of cotton machinery, agricultural implements and products; in fact, to judge from appearances, I should think no branch of manufacture would pass unrepresented. I feel warranted in stating that the machinery to be exhibited in the French Exhibition will be four times greater than the amount displayed in the New York Crystal Palace.

Great Britain will take a bold position in the display of machinery, as well as in other objects of general manufacture. Some idea may be formed of its magnitude when I inform you that the number of British exhibitors is understood to exceed three thousand.

Over fifty large cases of machinery have been sent by one London firm; and in the management of this vast and complicated interest every detail is most carefully supervised by the English Commission. The British Department of the Exposition is under the charge of the London Board of Trade, and its members receive salaries, and all necessary expenses from their Government. In addition to this, a few of the British red coats are profitably employed in getting the articles ready for exhibition. They probably enjoy this much better than to be shot at in the Crimea.

I must say that in every respect the English Department is the best managed—no disorder, no confusion.

The English Commission has an office erected in the building, which is faithfully attended, and all accounts of the receipt of goods, all orders to subordinates, and all inquiries are made here, and speedily executed. Not a package of goods is missing, and there is not the slightest difficulty in finding what is sent to the building. Everything is done in order. As a strange contrast to this pleasant picture, I refer again to the United States Department..

There has been no concert of action between our government and contributors in getting the articles into the port of Havre, from which point the French Government transports them free to the Exhibition. The cases already arrived have come in much confusion; one piece of statuary has been completely destroyed, and there are now in the hands of Livingston, Wells & Co., agents at Havre, several boxes for the exhibition upon which the trans-atlantic freight has not been paid, and there are no marks upon the boxes which indicate the source from whence they originate. They cannot be brought to Paris until their disabilities are removed.

S. H. W.

An Egg within an Egg.

A M. Beale of Somerset, Iowa, writes us that three double eggs can be seen in that place. The outside one is large and contains a yolk, and encloses a smaller one—the size of a hen's egg—enclosed in a perfect shell.

Springs of pure mineral oil are found in the vicinity of Osawatomie, in Kansas territory, like the "petroleum" found in Western Pennsylvania.

Recent Foreign Inventions.

PUDDLING IRON—James Nasmyth (the inventor of the steam hammer,) patentee.—This improvement consists in the disengagement of the carbon from the molten metal in the puddling furnace, by subjecting it to the action of currents of steam, introduced as near as possible at the lowest portion of the molten metal, thence diffused upwards, so as not only to mechanically agitate the metal, and thereby keep exposing fresh surfaces of it to the action of the oxygen of the air passing through the furnace, but also to remove the sulphuric and other deleterious substances in the iron, by thus making the oxygen of the air, and also the hydrogen of the water, combine with them, and carry them off in the state of acid gas. It is stated that this process shortens the period of puddling, and greatly improves the character of the iron, rendering it tough and strong to a remarkable degree. The steam is introduced by a pipe under the molten metal, and the supply of it shut off, when in the judgment of the operative puddler, the metal has been sufficiently decarbonized. The patentee states that water may be forced under the surface of the metal to produce the same effects; but this would cause explosions; small quantities, however, he says, would be equivalent to steam. The steam is not used for above five minutes after the metal is melted. Care must be exercised not to use it too long, or the oxygen of the steam will unite with the iron, and form an oxyd.

This is a good improvement, but H. W. Woodruff, of Watertown, N. Y., is a little ahead of Mr. Nasmyth in its application.—He obtained a patent for the same object on the 9th Oct., 1853; his claims will be found on page 43, Vol. 9, SCIENTIFIC AMERICAN. He uses water in a sponge instead of steam in jets, but the result is the same.

PREVENTING SMOKE IN FIRE PLACES AND FURNACES—J. B. Jackson and Wm. Bowler, of Sheffield, patentees. This improvement consists in applying to furnaces and fireplaces a passage, or passages, along the bottom of the ash pit, opening to the main flue immediately behind the fire space, which passage is furnished with an automatic valve for regulating the supply of air.

TRAP ROCK MANUFACTURES—J. T. Chance, of Birmingham, England, has taken out a patent for fusing trap rock, and submitting it to severe pressure in that state by machinery, so as to make it into slabs, and various other articles.

OBTAINING SULPHUR FROM PYRITES—Peter Spence, of Pendleton, chemist, has obtained a patent for extracting sulphur from iron pyrites, by mixing pyrites, or other substances containing sulphur, with coke or charcoal in a furnace, and keeping them at a red heat until the separation of the sulphur is effected.

ORNAMENTING WOOD—Thos. Clayton, of Oldham, England, has obtained a patent for transferring the designs of graining on choice wood, such as mahogany, rosewood, yew, &c., from engraved metallic heated rollers, or flat surfaces, to surfaces of common woods, such as pine, whereby a close imitation of choice and expensive woods is produced.

This appears to be a method of ornamenting wood well worthy of attention from our cabinet makers.

CARRIAGE SHAFTS—H. A. Genetreau, of Paris, has obtained a patent in England for the application of whalebone, or of bamboo cane, to the contsruction of carriage shafts.

MATCH CIGARS—W. P. Surgey, of London, has taken out a patent for tipping cigars with an ignitable composition like a match, to be fired by friction. Not so good a plan for a smoker, we should think, as carrying a box of matches.—[Collated from Newton's Journal, London Mechanics Magazine, and Artizan.

Professor Agassiz.

Prof. Agassiz is now engaged upon a work to be entitled "Contributions to the Natural History of the United States." It is to be published in ten quarto volumes, and the first part is soon to appear.

(For the Scientific American.)

Coach Painting.

It is by no means as a bone of contention that prompts us to pen the present communication, to meet the almost countless number of eyes which weekly peruse the contents of your highly popular journal, but a desire to correct, with friendly feeling, a most novel error, found on page 250 SCIENTIFIC AMERICAN, of which A. W. H., of Platte City, Mo., is the author.

Every varnish manufacturer in the Union will agree with us in the assertion that copal and coach varnish are not the same thing, being, in part composed of entirely different materials. There is still another kind of varnish used in coach painting, called "body varnish," which also differs from the two former.

But what we wish to notice more particularly is the following direction for painting coach bodies, which we quote from the article above referred to:

"For filling or priming carriage or buggy bodies, grind yellow ocher with linseed oil quite stiff, add *drier* in proportion, about half a pint to a gallon of paint; thin with turpentine, or use oil well boiled with a quarter of a pound of litharge to the gallon, and use no other drier. Put on three coats of this paint, giving time to dry hard, and sand-paper well between coats. When thoroughly dry and hard, rub down with pulverized pumice stone and water; use a piece of wool hat or thick cloth for rubbing. Then put on three coats of copal (best coach) varnish, rubbing down between the coats with a coarse linen cloth," &c. &c.

As A. W. H. is desirous of having coach painters to comprehend the general principles of the art, we would most respectfully submit the following to his careful consideration:

PAINT FILLING FOR CARRIAGE BODIES.—Take 1 lb. yellow oaka, 2 oz. white lead, 2-3 teacupfull of drier, half a teacupfull of copal varnish, 2 table-spoonsfull of boiled linseed oil. Reduce with spirits of turpentine to the thickness of cream, when it is run through the mill, and is then ready for applying to the body. This paint in all cases is applied to the work in as thick and heavy a state as to make it work, never thinner than the thickness above mentioned; after the body has been puttied up, and received two coats of lead paint, mixed as follows: to 1 lb. white lead add half an oz. lampblack, two-thirds of a teacupfull of drier, half a teacupfull of boiled oil, and reduce with turpentine,—it is ready for the application of the paint filling.

However, it is considered proper by most painters to sand-paper each coat of lead paint when thoroughly dry. But in no case is the paint filling thus treated. In applying this latter paint, the body should stand at least 24 hours between coats; from two to five coats are required, according to the grain of the wood to which it is applied; when sufficiently hard, rub down with pumice stone and water,. To accomplish this, take a small piece of pumice stone, with a flat surface ground upon it; this hold in the right hand, and in the left a sponge filled with water, the water being permitted to flow upon the parts you are rubbing with the stone. Thus a perfectly smooth and level surface is cut upon the body. This done, the work is cleaned off, and then dry a thin coat of lead paint is again applied, which latter being smoothly rubbed down with fine sand paper, the body is ready for the color. This applied, the next step in order is the application of the varnish, which is afterwards rubbed down with pulverixed pumice stone and water; and if a polish is desired, this latter process is followed with rotten stone and water, cleaned off with a fine peace of buckskin, and finished by rubbing the surface well with a fine article of sweet oil.

We would here remark, that by attempting to rub down the paint filling with pulverized pumice stone and cloth, it would be found that the desired effect could not be attained, as it would simply smooth the surface, but not cut it down and make it level.

Pulverized pumice stone is never used by experienced painters for any other purpose than for cutting down the varnish. Again, coach painters, never use a coarse linen cloth for rubbing off the varnish, as that will scratch the painting.

Persons should indeed (using the concluding expression of A. W. H.) "learn the qualities and nature of all the articles used in in paints and varnishes, in order to do good work;" and we may add, that it is of equal importance that they perfectly understand the proper manner of applying the same.—

EDITOR COACHMAKER'S MAGAZINE.

Kentucky Mechanics Institute.

MESSRS. EDITORS—In your paper of Saturday May 19th, we were pleased to see a flattering notice of the "St. Louis" Mechanics Institute, as taken from the Louisville *Courier*. The "facts and figures" correspond so exactly with the report of our Institute, and we have so much confidence in the opinion of the SCIENTIFIC AMERICAN, that we cannot but envy the "St. Louis" fellows their compliment, and wish that *our* name instead of *theirs* had been inserted in that notice.—Now, we are willing to recognise all the merits they deserve, but as our Institute is flourishing and theirs has been defunct four or five years, you must excuse us for not wishing to loan them our laurels. We are willing to admit that St. Louis is quite a place for a country village, but *we* are the chaps that pocketed your last "Hundred Dollar Prize," and intend to do it again if you give us a chance.

M. M. G.

Louisville, Ky.

[We are indebted to M. M. G. for directing our attention to this; the Louisville Mechanics Institute, and no other, was present to our mind when we penned the notice. The Louisville mechanics have shown themselves to be the very "chaps" to conduct an Institute in a spirited manner, for it requires a zeal and taste for useful and sound information to make such an Institution prosper; this, to their credit, they have exhibited.

Sailing Against the Wind.

MESSRS. EDITORS—In No. 37 of the SCIENTIFIC AMERICAN, I notice that the question of propelling a vessel against the power that drives it is again discussed.

Your correspondent, J. B. C., might have saved himself the trouble of entering into so nice a calculation and the use of so many figures if he is correct. He states, "if the sails move half as fast as the wind the back of the sails in returning below the top of the boat and striking against the dead air would cause an equilibrium." Now, if this was the case, the wheel would not stir, and of course the boat would drift backwards without the need of so many figures to prove it. But it so happens that this is not the case, as equilibrium is a balance of forces. If a current of air is impinging upon the upper surface of the wheel, it is evident that a like current must act upon the lower surface, to establish an equilibrium, nothing can be plainer than this. If the wind is blowing at the rate of 12 miles per hour it makes no difference whether the wheel moves half so fast or not, there can be no equilibrium established so long as the under surface in acting upon the still air.

In my first letter to you, I stated that, "notwithstanding action and re-action were equal, a body could be made to move directly against the power that propels it upon the well known principle of gaining power by sacrificing speed, and vice versa, and that a vessel could be constructed to go against the wind that propelled it." I am of the same opinion still, and when I can have leisure time sufficient, shall undertake to demonstrate the same to you by something better than mere theory or calculation—actual experiment.

I repeat again that I am no perpetual motionist. I have no idea of man's accomplishing perpetual motion until he can wheel himself off on a wheel-barrow by the handles, or overcome friction and the law of gravitation.

GEO. W. STEDMAN.

Vienna, N. J., May 27th, 1855.

We have received a copy of the Report of the Pottsville (Pa.) Scientific Association, to which we shall devote attention next week.

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TO CORRESPONDENTS.

J. D. R., of Phila.—The phenomena you speak of, we suppose is often witnessed, but you would not take it as proof of life being produced without an ovum ; we would not.

E. B., of N. Y.—We cannot tell you where to obtain the broom machiney, or we would be happy to do so. The machines you speak of for stockings we thought had been abandoned.

J. McK., of N. J.—We do not know how to remove freckles.

J. A. F., of ——.—The receipt you refer to is taken from the work of E. Wilson, F.R.S., on Diseases of the Skin.—Your plan of shaving we do not think is a good one ; but what may be suitable to one person, may prove the reverse to another. As a hair tonic, Wilson also gives the following prescription :—Mezeron bark, one ounce ; horseradish root, one ounce, and half a pint of distilled vinegar. This infusion is to stand for a week before being used.

H. B. L., of Ohio—We could not advise you to employ water rams ior irrigating your farm, because we cannot give a positive opinion respecting their economy for such a purpose ; but could you not cut a water course across the head of your farm and bring the stream in channels down through several parts of the land. This is the way they do in some tropical countries. You might build a dam to obtain a good supply for very dry weather.

J. A. H., of Wis.—Your water-proof bedtick is not patentable. $1 received. Your writing is so indistinct that we can only read a portion.

J. M., of Mass.—Smith's work on dyeing is published by H. C. Baird, Philadelphia ; write to him respecting the price.

S. V., of Phila.—We have not seen "Pierce on Sounds." We would be happy to give you the information were it in our power to do so.

S. M., of M., of Md.—Another person is about getting up such a model as the one you propose.

R. C. B., of Ill.—The measurement of ships is not included, we believe, in the Congress of Nations.

J. M. H., of Miss.—The "Art of Tanning," by Morfit, is published by H. C. Baird, Philadelphia ; the price we believe is three dollars ; write to the publisher. Prentice & Co., this city, have a large fur manufactory. The light of the moon, seen during an eclipse, is reflected from the earth.

G. P. K., of Ind.—Asks if the air that is discharged in the bolt through a pipe five times larger than the supply pipe, would be any objection in separating the flour from the bran. We don't know ; try it and see.

H. N. B., of N Y.—We are not acquainted with any institution devoted expressly to civil engineering ; it is taught however as a branch of education in a number of institutions.

J. McM., of Ky.—We believe it has long been settled among engineers that a speed of 100 miles or more per hour may be obtained on railroads, provided the grading and all the appurtenances are constructed with that view. But the chief hindrance at present is the cost. No new ideas on the subject are advanced in your letter.

D. S., of La.—We observe nothing to prevent the successful operation of your out-off arrangement. The expense of an engraving will be $15. Sketch returned.

F. S. L., of Mass.—We cannot say what the reports would cost.

S. E. Y., of Md.—For your own sake, we advise you to acquire as good an education as possible : a thoroughly scientific and practical engineer cannot fail to obtain a good situation.

A. W. G., of Iowa—There is no good work of the kind wanted by you. One of the eggs you speak of ought to have been hatched in order to arrive at the result.

☞The following is a list of Letters Patent remaining in our possession, which we would thank the owners of to order away. They occupy so much room in the fire proof safe where they have been deposited, that we shall either be obliged to obtain a larger safe as a receptacle for them, or provide less secure means for their protection. We prefer that the owners would order them sent to them, for they are no doubt of value to them, while they are of no use to us, and occupy valuable space which we need for other purposes. They can be sent by mail, or express, as the parties ordering may request. If ordered by mail, the person writing for them will please to enclose 8 P. O. stamps to prepay the postage :

S. D. Hopkins, C. G. Best, A. Dennison, Benj. Irving, Stephen Crane, T. Pearsall, W. G. Huyett, A. Anderson, J. Andrews, H. Barrington, E. L. Norfolk, Martin Bell, Stouffer, Brough, & Barr, B. F. Bee, W. Wright, S. Bell, G. Street, B. T. Babbitt. B. M. Snell, D. S. Howard, Obed Hussey, John Parry, J. U. Wallis, Hunt & Nordyke, T. J. W. Robertson, P. F. Charpie, C. L. Adancourt, S. F. Field, Rapp & Wright, A. Duboce, E. Ford, U. H. Goble, James Curtis, S. S. Hurlbut, T. Hopper, H. Snow, J. B. S. Hadaway, G. Seibert, J. Butts, Wm. Brooke, Jas. Baxendale, G. W. Griswold.

Also the following Foreign Patents and Assignments :

J. N. Gamewell, Rogers & Whitney, E. E. Boies, B. Hughes, D. Noyes, C. W. Brown, — Tewksbury, A. E Burnside, J. C. Howe.

Money received at the SCIENTIFIC AMERICAN Office on account of Patent Office business for the week ending Saturday, June 2 :—

G. A. P., of N. Y., $100 ; R. & T., of N. Y., $510 ; A. K., of Md., $35 ; J. H. G., of Ky., $10 ; E. D. B , of N. Y., $25 ; T. E. C. B., of Ky., $15 ; J. W. B., of Ark., $30 ; S. & C., of N. Y., $25 ; M. T., of Ill., $60 ; J. S R., of Cala., $30 ; D. L. C., of Ct., $55 ; Y. L. S., of Mass., $25 ; R. A P., Jr., of Mass., $20 ; S. W. S., of N. Y., $15 ; J. G. H., of Fla., $34 ; H. R., of N. Y , $5 0 ; A. W. W., of Wis., $25 ; J. S., of N. Y., $30 ; Y. R. T., of N. Y., $30 ; W. H. F., of Miss., $120 ; W. P., of N. Y., $55 ; E. E., of Ct., $30 ; W. S., of N. Y., $30 ; C. M. S., of Ind., $25 ; A. H. R., of Pa., $30 ; Y. A. M., of N. Y., $25 ; J. T., of Ct., $30 ; M. & C., of N. Y., $30 ; B. F., of Ind. 65 ; C. D. R., of Wis., $10 ; W. L. C., of Pa., $25 ; B. F., and Sons, of N. C., $30 ; D. W., of Mass., $10 ; E. A., of N. Y., $10 ; M. McG., of Mich., $25 ; W. F., (2nd) of Mich., $25 ; J E., of Mass., $30 ; B. R., of Va., $25 ; S. M. N., of Mass., $25 ; L. C., of Ct., $25 ; H. J. C., of N. Y., $10 ; O. S., of N. Y., $25 ; P. & S., of Mass., $30 ; R. J. W., of Va., $30 ; A. H., of N. Y., $25 ; L. & A., of N. Y., $30 ; J. U. W., of N. Y., $25 ; H. H. M., of Ill., $60.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, June 2 :—

E., D., B., of N. Y. ; C. W. R., of Pa. ; P. & B., of O. ; S. & C., of N. Y. ; A. K., of Md. ; S. W. S., of N. Y. ; W. A. S., of Mass. (2 cases) ; A. H., of N. Y. ; Y. L. S., of Mass. ; C. M. S., of Ind. ; A. W. W., of Wis. ; A. H. R., of Pa. ; L. & A., of N. Y. ; L. C., of Ct. ; S. M. N., of Mass. ; W. L. C., of Pa. ; W. F., of Mich. (2 cases) ; B. R., of Va. ; O. S., of N. Y. ; S. H. T. T., of Md. ; J. S. M., of Ill. ; J. U. W., of N. Y. ; C. D. R., of Wis.

Important Items.

PATENT LAWS, AND GUIDE TO INVENTORS—Congress having adjourned without enacting any new laws pertaining to applications for patents, we have issued a new edition of the old laws, which may be had at our counter or sent by mail. This pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office Price 12½ cents per copy.

PATENT CLAIMS—Persons desiring the claim of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office, stating the name of the patentee, and enclosing $1 for fees for copying.

RECEIPTS—When money is paid at the office for subscription a receipt for it will always be given, but when subscribers remit their money by mail, they may consider the arrival of the first paper a bona fide acknowledgement of the receipt of their funds.

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☞ All advertisements must be paid for before inserting.

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In addition to the advantages which the long experience and great success of our firm in obtaining patent present to inventors, they are informed that all inventions patented through our establishment, are noticed, *at the proper time*, in the SCIENTIFIC AMERICAN. This paper is read by not less than 100,000 persons every week and enjoys a very wide-spread and substantial influence. Parties intrusting their business in our hands can rely upon prompt and faithful attention.—Most of the patents obtained by Americans in foreign countries are secured through us ; while it is well known that a very large proportion of all the patents applied for in the U. S., go through our agency.

The offices of Messrs. Munn & Co.'s American and Foreign Patent Agency are at 128 Fulton Street, New York ; London, No. 32 Essex st., Strand ; Paris, No. 29 Boulevard St. Martin ; Brussels, No. 6 Rue D'Or.

THE DAILY SUN—Mail Subscribers.—The morning edition is forwarded by the early mails to country subscribers, at $4 per annum, or $1 per quarter, payable in advance. The postage under the present law is as follows:—To any Post Office in the State of New York, 78 cents per year, payable quarterly, 19½ cents in advance. To any Post Office out of New York State, but within the United States, $1 56 per year, payable quarterly, 38 cents in advance.

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39 2* 67 Exchange Place.

WROUGHT IRON PIPE—Boiler Flues Pumps Gauge Cocks, Oil Cups, and every variety of fittings for steam, gas, and water, manufactured and sold on the most favorable terms, by JAMES D. MORSE & CO., No. 79 John st., New York. 39 8*

LOWELL HYDRAULIC EXPERIMENTS—LITTLE BROWN, & Co, Boston, have just published Lowell Hydraulic Experiments ; being a selection from experiments on Hydraulic Motors, on the flow of water over weirs and in canals of uniform rectangular section, and of short length Made at Lowell, Mass., by J. B. FRANCIS, Civil Engineer, etc. 1 Vol. 4 to. ; 15 plates, beautifully engraved, Price $10

The most original and important practical scientific treatise ever published in the country, and in its particular branch in any country and which for reference must be standard among hydraulic engineers."—[N. Y. Courier and Enquirer. 39 2

THE NEW YORK WEEKLY SUN is now sent to subscribers at the following very low rates, payable in advance :—One copy, 3 months, 25 cents ; 6 mos, 50 cts ; 1 year, 75 cts ; 16 months, $1 ; 3 copies, 1 year, $2; 8 copies $5 ; 13 copies, $8 ; 25 copies, $15. The postage within the State is only 13 cents a year—out of the State 26 cents a year. ☞No traveling agents are employed. Specimen copies sent gratis. All letters should be post paid and directed to MOSES S. BEACH,
39 Sun Office, New York.

MAMMOTH CATALOGUE OF BOOKS and Prints for 1855-6 —sent gratis to all who apply for it. Address STEARNS & CO., publishers, corner Ann and Nassau sts., N. Y. 39 2*

RARE CHANCE FOR A SPECULATION—I will assign one half of my interest in a foreign patent on the wrench for which a U. S. patent was granted to me May 22, to any one who will pay the expenses of taking out a patent in a foreign country.
1* F. S. COBURN, Ipswich, Mass.

FOR SALE—Two patents (of late date) for improvements in Safe Locks ; both locks are unpickable and powder proof ; simple to manufacture, and meet with a good sale. Address LINUS YALE, Newport Herkimer Co., N. Y. 39 3*

WELL'S PATENT CIRCULAR SAW MILLS —Manufactured by H. WELLS & CO., Florence, Mass. Double Mills, No 1 to 10, with 40 and 24 inch to 51 and 48 inch Saws Single Mills with 36 inch to 72 inch Saw. Admitted the best in the United States for the general lumbering business, especially the Double Mills, for cutting all sizes of logs which we can furnish, say No. 4 with 48 and 30 inch saws, complete, at less than the price of a 72 inch Saw, and a great saving in lumber and power is effected thereby. Child's Circular Saw Mills also constantly on hand. 37 4eow*

UNITED STATES PATENT OFFICE,
Washington, May 19. 1855.

ON THE PETITION of Emily C. Pullman, administratrix of the estate of Lewis Pullman, deceased, late of Albion. N. Y., praying for the extension of a patent granted to the said Lewis Pullman, on the 21st day of August, 1841, for an improvement in "machines for removing buildings," for seven years from the expiration of said patent, which takes place on the 21st day of August, 1855 :

It is ordered that the said petition be heard at the Patent Office on Monday the 6th day of August next, at 12 o'clock, M. ; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing ; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 26th day of July, 1855 ; depositions and other papers relied upon as testimony must be filed in the office on or before the morning of that day ; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C. ; Pennsylvanian, Philadelphia, Penn. ; Scientific American New York ; Daily Baltimore Republican, and Post, Boston, Mass., once a week for three successive weeks previous to the 6th day of August next the day of hearing. CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 38 3

RURAL PUBLICATIONS—The attention of all persons interested in rural pursuits, is invited to the following publications :—THE COUNTRY GENTLEMAN—A Weekly Journal for the Farm, the Garden, and the Fireside—forming yearly two large and beautiful quarto volumes of 416 pages each. Price $2 a year. This is, beyond question, the best agricultural journal published in this country. Specimens sent to all applicants. Subscriptions may begin at any time. A new volume commences July 1st. THE CULTIVATOR, a monthly journal for the farmer and the horticulturist, beautifully illustrated, and forming an annual volume of nearly 400 pages, at 50 cents a year. The "Illustrated Annual Register of Rural Affairs, for 1855," embellished with more than 100 engravings ; 1 vol. 12mo. 144 pp., price 25 cents in paper covers, bound, 50 cents ; sent free paid by mail. "Relations of Chemistry to Agriculture, and the Agricultural Experiments of J. B. Lawes," a new work by Prof. Liebig just published, price 25 cts. ; sent prepaid by mail. Specimens and prospectuses sent to those disposed to act as agents. Address the publisher, LUTHER TUCKER, Albany, N. Y. 38 2*

BALL AND BALLARD, (successors to Ball and Rice.) Worcester, Mass., continue to manufacture the well known Daniels Planers ; Gray and Wood, Patent Planers, being a combinattion of parts of the Daniels and Woodworth Planing Machines. This machine does the work fast and very nice ; also Wright's Scroll Saws. Tenoning and Sash Molding Machines, warranted to be of a superior quality, and have recently been much improved ; we also manufacture Mortising Machines, and a variety of other articles wanted to accompany the above named machines. 38 4*

ENGINEER'S OIL AND LUBRICATING COMpounds—Cumberlands' Metallic Oil, and Yockney's Superior Lubricating Compounds. These oils are free from unpleasant odor, and will not gum on machinery. Also Yockney's Economic Lamp Oil. Parties wishing to procure the genuine qualities are recommended to send their orders direct to the manufacturer. Orders directed to him, at the old stand, 67 Exchange Place, will have his immediate attention.
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PARTNER WANTED—The undersigned having secured a U. S. Patent for an invention which promises to be very profitable, is desirous of forming a partnership with a person having from $500 to $1000 capital. The invention consists of a new kind of spring gun, to be attached to safes, door locks, etc., called an "Alarm Attachment" It may be easily arranged however, so as to give alarm or to wound. For further particulars apply to JOHN SCHNEIDER,
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GRAIN MILLS—EDWARD HARRISON, of New Haven, Conn., has on hand for sale, and is constantly manufacturing to order a great variety of his approved Flour and Grain Mills, including Bolting Machinery, Elevators, complete with Mills ready for use. Orders addressed as above to the patentee, who is the exclusive manufacturer, will be supplied with the latest improvements. Cut sent to applications, and all mills warranted to give satisfaction. 34tf

IMPORTANT INVENTION—Patented 7th June, 1853.—Falconer's Coupling for hose, hydrants, force pumps, etc., is the only coupling likely to supersede the screw coupling, It can be made cheaper than the screw coupling, and excels it in every respect, and after a public trial under the severest tests, it has been adopted under an Act of the Corporation of the City of Washington, for the Fire Department, in place of the screw coupling. For the purchase of rights under the patent, apply to Prof. CHAS. G, PAGE, Washington, D. C. 35tf

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N. B.—It is now admitted by all that New Haven is the best place to buy good machinists tools for 25 per cent less than any other place in the United States, as it was the first place and still is the only place where the tool business is pursued in a systematic way, which always gives good work and at a low price. And I know that I can sell (when quality and capacity is considered) ten or fifteen per cent. lower than any other tool builder in New Haven, as my business is large, and I make all of my own castings, and also 19-20ths of all the tool castings made in New Haven. Hence no one pretends to compete with me. Cuts of tools, with descriptions and prices, can be had by addressing as above. 33 tf

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T. B. RUSSELL, Manufacturer of Philosophical Apparatus and Inventors' Models, No. 7 Washington street, Salem, Mass. 33 12*

ANDREWS & JESUP—Commission Merchants. Cotton and Woolen Machinery, Steam Engines, Machinists Tools, Belting, &c., Importers and Dealers in Manufacturer's Articles, No. 67 Pine st., N. Y. 23 1y

SMITH'S WATER-TUYERES—Prosser's Patent. —These Tuyeres are made of wrought-iron, and are warranted not to crack by the most intense heat. Also Water-backs and Tables, for kitchen ranges hotels, and restaurants, &c., requiring a constant supply of hot water. THOS. PROSSER & SON, 28 Platt st., New York. 27 tf

STAVE DRESSER AND JOINTER —For tight work decidedly the best and cheapest in use. Machines can be seen in operation at SHAW & KIBBES, Shook Manufactory, Buffalo, N Y., and models may be seen at the office of the agent, JAMES S. POLHEMUS, 117 Pearl street, New York, to whom, or to the patentees, H. & L. D. BENSON, Jackson, Susquehanna Co., Pa., any communications may be addressed. 27 13*

NEW HAVEN MFG CO —Machinists' Tools, Iron Planers, Engine and Hand Lathes, Drills, Bolt Cutters, Gear Cutters, Chucks, &c., on hand and finishing. These Tools are of superior quality, and are for sale low for cash or approved paper. For cuts giving full description and prices. Address, "New Haven Manufacturing Co." New Haven, Conn. 32tf

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NORCROSS ROTARY PLANING MACHINE—The Supreme Court of the U.S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Woodworth Patent.

Rights to use N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS,
208 Broadway, New York.

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Science and Art.

The Art of Dyeing.—No. 24.

DRAB COLORS ON COTTON—Drab colors in great variety, can be, and are dyed, by different drugs. A good fast drab can be dyed by using three tubs, one of fustic liquor, for the middle dip, and pursuing the plan described for dyeing iron buff on page 274. Lime water reddens fustic, and thus it can be used very conveniently in dyeing this color, for it (the color) can be darkened to any shade by the addition of a little sumac liquor to the fustic—the sumac forming a black precipitate with iron.

A madder drab can be dyed on cotton by saddening down with a little copperas, a madder salmon in the same madder liquor in which it is dyed; and if it is required to render the shade more yellowish than by the use of simple madder in the bath, as described on page 274, a little quercitron bark liquor may be added—that is before the color is saddened with the copperas.

CATECHU DRAB—A great variety of shades of drab may be dyed with catechu and copperas. A little of this dye stuff is dissolved in hot water and placed in a tub, and a little copperas liquor added. According to the quantity of it used, almost any variety of drab shade may be dyed. This substance was well known and long used in the art of tanning, under the name of "Terra Japonica," before it was introduced into the art of dyeing, which was about twenty years ago; since that time, owing to its peculiar qualities, it has superseded logwood for a number of colors. There are several qualities of it, but the best is of a dark brown chocolate color, having no smell, but a very astringent taste, and is very brittle. A solution of it in water is of a very beautiful reddish brown hue. Acids brighten the color of this solution, and alkalies darken it. The skilful dyer tones his catechu drab to the proper shade, either with a weak solution of soda, or dilute muriatic acid.

The re-actions of the following substances on catechu will enable the dyer to use those proper for the shade he desires to obtain. Copperas gives olive brown solutions with it; salts of tin, yellow brown precipitates; sulphate of copper (blue vitriol,) yellowish brown; sugar of lead, a brick colored precipitate, and the bichromate of potash a reddish brown precipitate. Bearing in mind these several re-actions, the dyer, by the judicious use of the specific quantity of catechu to hit a particular shade of drab, can easily do so; a very small quantity of catechu is required for 10 lbs. of cotton.

MAHOGANY DRABS—For 10 lbs. of cotton. Boil 3 lbs. of mahogany saw dust for half an hour, and then draw off the clear liquor into a tub. Enter the goods and give five turns, then raise with a gill of the nitrate of iron, enter, and give five turns more, then lift, wash, and prepare for drying. This receipt is taken from Smith's work; he says, that drabs dyed in this way are very fast.

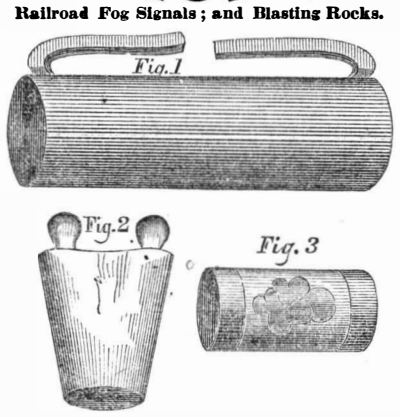
BARWOOD DRABS—Bleach ten pounds of cotton, and turn it in a tub containing half a pound of scalded sumac and the muriate of tin spirits, at about one third the strength of a spirit tub (3°) for one hour; then wash well, and wring up for the barwood. This is given in a boiler the same as dying reds, but only one tenth the amount of barwood is used, and about half a pound of quercitron bark. They are boiled in this for half an hour, then darkened with half a wine glass full of nitrate of iron.

Drab colors on cotton are very troublesome to dye, especially when sumac and copperas is used in the darkening of the shades, the color being so liable to dry uneven. The cotton should always be bleached for drabs.

Cholera Prize.

Since 1849, a prize of one hundred thousand francs has been offered by the French Academy of Science, for a prescription which would cure the Asiatic cholera in a majority of cases. At a late sitting of the Academy, it was decided that not one of the many suggestions which had been offered was worth a farthing. It has now been determined that any person who shall discover a positive indication of the causes of the disease, so that by the removal of them it will disappear, or who shall discover a sure preventive, such as vaccination is for the smallpox, shall be entitled to receive the prize.—There is likewise a standing offer of 5000 francs for a demonstration of the existence, in the terrestial atmosphere, of any matter or animalculæ operative in the propagation of epidemic diseases

Railroad Fog Signals; and Blasting Rocks.



The annexed figures represent two inventions of Capt. J. Norton, of Cork, Ireland, for the purposes specified in the above caption.

Fig. 1 is a perspective view of a railroad fog signal, and fig. 3 is its igniter. Fig. 2 is the device for blasting the stumps of large trees.

The signal, fig. 1, is placed upon a rail and secured to it with the clasps, which can be made of sheet lead or tin. The case is waterproof pasteboard varnished. The ends of it are stopped with pieces of cork glued in. It is charged with a mixture of chlorate of potas and sulphuret of antimony, equal parts. The igniter, fig. 3, made of a small transverse section of glass tubing charged with percussion powder, is placed in the center within the water-proof case, the wheel of the engine passing over the signal, crushes the igniter, and explodes the signal with a very loud and sharp report.

When the wheel of the engine passes over a tin case without firing it, the powder within is scattered around by the fracture; but if the wheel of the engine passes over this paper case, it is only flattened out, not fractured, and the second wheel passing over fires it.

Fig. 2 is a small tin case, about the size of a lady's thimble. The two ends that are sticking up at the top, are those of friction matches, the sides of the case being squeezed together to hold them firm in place, as represented. It is thus used: Bore a hole down in the stump, either inclined or vertical, and drop the igniter, fig. 2, into it to the bottom, and place some percussion powder with it. Take about a drachm of the best rifle powder, and pour this in on the top, and then insert a plug of iron to set close on the powder, but which with a smart blow, can be driven tight and snug into the hole. This plug should project about two or three inches. A smart blow then struck upon its head will ignite and explode the charge and split the stump.

Capt. Norton, in his letter to us states, "he hopes it will be very useful in America." By this method of blasting stumps, either small or large charges may be used. When a large charge is used, it would be well to carry a plank breastwork to kneel behind it for safety when the bolt is struck, to prevent any injury from splinters. This might easily be done, with entire safety, and we have no doubt but in many cases this method of blasting stumps will be found very useful.

The Pressure on the Barometer.

The last number of *Silliman's Journal of Science*, contains an article by Lieut. Maury, on the eccentricities of atmospheric pressure on the barometor in various parts of South America.

Leiut. Herndon, U. N. S., in his descent of the Andes, on his way from Lima to explore the valley of the Amazon, determined the hights of various places above the level of the sea, both by barometric pressure and by the boiling point of water.

At the eastern base of the Andes he found the pressure of the atmosphere, as measured by the temperature of boiling water, to be nearly as great as it is usually at the sea level; and after having *descended* the river for nearly a thousand miles below this place of great pressure, he found that, judging by the boiling point of water, he had *ascended* nearly 1500 feet!

The explanation of this curious anomaly is supposed to be this: The trade winds blowing against the Andes are obstructed by them, and, being thus obstructed, there is a banking up of air against these mountains, as there is of water against a rock or other impediment, over which the current of a rapid river has to force its way. In such cases there is a ridge or pile of water above the obstruction, and a depression or hollow in the water both above and below this ridge.

Further observations are necessary to determine the correctness of this theory.

Electricity and Ships Compasses.

The clipper ship *Flying Scud*, which left this city (New York) for Australia on the 28th of last September, while crossing the Gulf Stream, two days afterwards, was struck twice with electricity, which, although it did not kill any person, nor injure the vessel, because it had a lightning rod, yet it had a great effect on the compass.

When first observed, the needle revolved with great velocity, and this continued for some time; when it ceased, the compasses were found to be considerably changed, and it was afterwards discovered that they varied five points to the eastward of their true bearing, which, after a lapse of five or six days, diminished to three points. These facts were clearly proven by the position of the sun and the bearing of the north star. In consequence of this derangement of the compasses (five in number) it was necessary to lay the ship to under close-reefed topsails for eighteen hours, although the wind was perfectly fair, and the ship might have run one hundred and fifty miles at least. It would appear that the lightning struck the mizen mast, and descended by the lightning rod to the chains. The wind appeared to blow the copper wire of the rod against the chains, and hence it was conducted through the bolt into the interior of the ship, where it magnetized a large quantity of iron and steel implements which were in the hold.

To prove that these were the seat of attraction, the captain took a compass and tried it in various parts of the ship, when it was found to vary greatly. On the top-gallant forecastle the compass seemed somewhat to return to its proper bearing; abaft the main part of the ship it was most potent.

Placed upon the cabin floor, the compass still revolved with considerable velocity. On a board placed ten feet out upon the larboard side of the ship, the compass was found to be nearly correct; by this means the true course of the ship was found. The influence mentioned prevailed during the passage, until the 7th of December, in lat. 43° 45′ S. and lon. 110° 15′ E., where the compass seemed to be more correct, being found to vary but three-fourths of a point to the eastward. In this region several claps of thunder and lightning were observed, and these were followed by thick, foggy weather, which precluded the possibility of any observation for four days. When this was obtained, the ship was found to be 150 miles to the southward of her true course in consequence of steering by the compass, supposing it to possess the same variation which has just been mentioned; but when observation was obtained the compass was found to have returned to its true bearing, and thus was the course of the ship deranged and her voyage protracted.

Important to Mariners.

The Washington (D. C.) *Star* says, that the survey of the Florida coast this season, has established the fact that the charts most in use, and confided in by mariners, locate Cape Florida—one of the most important points on our Atlantic coast—six miles distant from its true geographical position.

Wind Measurer.

Vice Admirable Kreuger, of the Swedish Navy, has invented an instrument by which the force of the winds can be measured with the greatest exactitude; and by order of the King of Sweden, it is to be exhibited in the Universal Exhibition of Paris.—[Ex.

[An instrument for such a purpose, is not new, but this one may be an improvement over the old one.

New Steam Fire Engine.

A new Steam fire engine named "Young America," and built by Abel Shawk, of Cincinnati, has been tested with great success in Philadelphia. What has become of the Boston one?

Some wooden wheels made of kiln dried red cedar, with cast iron hubs and steel tires, have been in use on the Camden and Amboy Railroad, N. J., for six years.

LITERARY NOTICES.

BLACKWOOD'S MAGAZINE—Old Blackwood for this month contains an excellent scientific article on "The Length of Human Life;" "Zaidee, a Romance;" is continued, so is the excellent "Story of the Campaign," written by an officer in the army before Sebastopol. The other articles are good. It is a "tip-top" number. Leonard Scott & Co., publishers, No. 54 Gold st., this city.

PUTNAM'S MONTHLY—The June number of this sterling magazine commences a new volume. Under its new publishers it maintains its high character. Besides editorial notices, it contains fifteen original articles, the leading one on "American Travelers," is full of vigor, and displays keen powers of criticisms. Dix & Edwards, No. 10 Park Place, publishers.

HOUSEHOLD WORDS—Messrs. Dix & Edwards are also the American publishers of Dickens' Household Words, a periodical which is really well named. It is devoted to light literature of the very first quality. The June number contains a great and pleasing variety of stories and essays, one of the latter with a queer name, ("Fencing with Humanity,") being worth the whole price of the book to our manufacturers and operatives in cotton and woolen mills.

SOUTHERN QUARTERLY REVIEW—This able Review for this quarter opens with a sharp review of Senator Benton's work on the working of the American Government for thirty years. It contains a very able article on Louis XIV. of France, and nine others equally as good, on different subjects,—one being devoted to the Principles of Art. The Southern Review is quite a respectable volume. Published in Charleston, S. C., by C. Mortimer. 1

THE KNICKERBOCKER, for June, contains some capital things, but then it always does—among which and highest is the leader, on "Heroes and Heroism." It contains some noble and sweet poetical effusions; and the Editor's Table is "young, fresh and blooming as the morn." Published by S. Hueston, 348 Broadway.

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